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CANCER OF THE BREAST *

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Cancer of the mammary gland is second in frequency only to carcinoma of the stomach. When a clinical diagnosis of it can be made with reasonable certainty it is oftentimes too late for a radical cure to be effected, because it has ceased to be a strictly local condition, as are all such lesions in their incipiency, but instead, has, through metastases, become a general and therefore necessarily lethal disease. A late diagnosis cannot be atoned for by a more extensive operation, as operative measures have already been carried to the farthest possible limit. Therefore our best endeavors should be enlisted in the direction of earlier diagnoses, or, better still, we should attack all lesions that are potentially malignant and remove them at a time when their hosts can safely, certainly, and quickly be cured. The presence of so many laymen to-night would seem to make it necessary to emphasize what has long been known to surgeons and pathologists, that cancer is primarily of local origin. Further, there are many in the profession, a few in high authority, who still cling to a teaching which is as archaic as it is unfortunate. Moore of London demonstrated in 1867 that cancer *begins always* as a strictly local disease. The evidence is clinical, microscopic, experimental and surgical, and no jury reviewing it can fail to find a prompt verdict. The clinical evidence alone is suggestive, indeed, well-nigh conclusive. Early in the disease a patient seems in every way to be in perfect health. They are well nourished, they have no pain, they eat, sleep, look and feel perfectly well. Could this be so if the disease were constitutional?

The microscopic evidence is conclusive as to the local nature of the affection: if one cuts through the center of a growth, and places a section under the microscope, there will be seen countless epithelial cells pathognomonic of cancer. At the periphery of the tumor such cells become fewer in number, and, just beyond its edge there are few, or none at all. Can this mean but one thing—a local neoplasm?

If a mouse is injected with cancer cells there will, in time, appear a small tumor at the identical spot where the injection or needle puncture was made. It grows slowly but steadily, and there is no tumor or swelling at any other place. The mouse seems as well as any others with which it may be placed. It eats, plays, sleeps, and behaves in every way as other mice do. Later on secondary swellings, or tumors, appear over other parts of its body, and simultaneously with them the animal loses its appetite, evidently has pain, becomes emaciated, and finally dies. Plainly the disease is now constitutional, the blood and many solid tissues being involved. But as weighty as the clinical, microscopic and experimental evidence is, the surgical is by far more convincing. If the small growth be excised, along with a fair amount of the tissue immediately adjacent thereto, so as to get beyond any outlying cancer cells, or as a layman would say, "the roots," the wound made in so doing quickly heals and that is the end of the trouble. It never returns *in loco* or elsewhere. All depends on the thoroughness of removal.

It would be interesting, if time allowed, to prove this incontestably by reviewing operative results from the time when operators were pessimistic and faint hearted, practicing only partial or incomplete removal, with the far better results secured at the present time when a judicious optimism prevails with all up-to-date surgeons, who, accordingly, institute radical procedures and usually eradicate the disease. We could show how operative results have improved not only with each decennial or quinquennial period, but, in fact, have improved year by year since Moore's epoch-making discovery. The forceful teachings of Moore and Banks of England, Billroth and Volkmann of Germany, and Gross, Halsted, Warren, Meyer, and others in America have long since been accepted without question and should be thundered from the very housetops. Every patient with early cancer of the breast, every physician consulted on account of it, should know that prompt and radical surgical treatment offers almost certain relief. If it does not follow, somebody has blundered. Usually it will be the unfortunate host, who has suffered so little inconvenience thereby as to think it trivial and refuse to seek advice. It may be the physician who prefers "to wait and see if it is malignant" before advising its removal; or, it may be the surgeon who performs an incomplete operation. Nevertheless, there *was* a time when a definite and permanent cure would have been not only possible but next to certain. Should we not, therefore, pull together and not apart?

We have said that early diagnosis and prompt surgical intervention are both necessary. Can an early clinical diagnosis always be made? No, but usually it can be done, and in doubtful instances there is a perfectly safe and accurate way of making a diagnosis. It is not by cutting into a growth, removing a part, and submitting it to a pathologist, who gives his report at the end of a fortnight. This plan is usually fatal and is to be condemned, as cancer cells are disseminated thereby and the local process made a more or less general one. The only rational procedure is to remove all of the tumor with a reasonable amount of surrounding tissues, and submit all to the pathologist, who is present, and who will furnish an immediate

* Address before the Southern Medical Association in Richmond, Va., Nov. 11, 1914.

report after making frozen sections. This can be done in five minutes, and the action of the surgeon depends entirely on the report of the pathologist, which should be both accurate and dependable.

Every one familiar with pathologic conditions in the mammary gland knows that a vast majority of them are either malignant or potentially so. All should

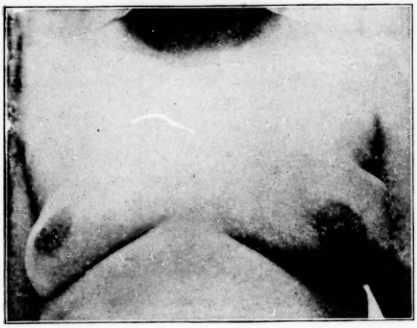

Fig. 1.—Growth clinically diagnosed as a sarcoma in a woman 47 years old. Pathologically diagnosed as either a myxoma which has undergone sarcomatous change, or benign growth.

therefore be considered malignant until found to be benign. In patients who have reached the age of 40 or upward, the immense majority are malignant *ab initio*. But we have been too dogmatic in the past in declaring that cancer is an affection of middle or advanced life. Twenty per cent. of carcinomas of the breast occur in women under 40, and I recently encountered it in a girl of 17. Moreover, when it does occur in young women, it is relatively more fatal than in older ones. It is therefore even more necessary to act promptly.

Why is it more fatal in the young? Because their lymphatic vessels are both more numerous and patent, and hence a strictly local process soon becomes a general or disseminated one. In short, the lymphatic glands become involved at an earlier stage in the young, and when such is the case, the chances of a radical cure are about one-fourth as great as when they are not involved. Twenty-five per cent. of the patients with axillary involvement are cured by operation; 80 per cent., or more, when there is no such involvement. Could a better reason be given for prompt action, as no one can foretell when the axillary glands may become involved? They are practically always infected within a twelvemonth after the local appearance of the growth in the breast, and may be so much earlier. The younger the patient, the sooner the involvement.

Difficult as it is clinically to distinguish with certainty between benign and malignant solid growths, the difficulty is greater when the two varieties of cysts are considered, and greatest when abnormal involution and carcinoma are to be differentiated. The microscope, and it only, can be relied on. The only safe plan is to obtain the consent of the patient to a complete operation, should it be necessary, the surgeon being governed absolutely by the report of the pathologist based on frozen sections. Patients have a right to profit by their own pathology, and it is the duty of the surgeon to have at hand a competent pathologist to render him prompt and accurate aid. In my judgment it is now impossible, perhaps always will be so, to make a diagnosis reasonably certain in any other way. For instance, in a careful analysis of sixty-five cases of abnormal involution or chronic cystic mastitis coming to operation at my hands, fourteen, or 21.5 per cent., had undergone undoubted carcinomatous degeneration when operated on; in some the malignant changes were advanced, in others just beginning. Speese found 25 per cent. of the patients operated on at the clinics of the University of Pennsylvania showing carcinoma, and a recent report from one of the German clinics (Bertel) showed that 25 per cent. of the abnormal involution cases there operated on had already undergone malignant degeneration. I feel, therefore, that the percentages given by Warren (13) and Greenough and Hartwell (10) are too low. But even if they are not, and the chances are only half as great, it would be unfair to the patient and unjust to the reputation of the surgeon to withhold any information that may be helpful. Partial operations in chronic cystic mastitis are rarely justified in those who have reached the age of 40, and should not be practiced at all, even in younger women, unless the microscopic report seems to make it safe. But, even though malignant change has not already begun, who can say that it will not take place at some future time, with a condition present which is always admittedly potentially malignant? Reclus, one of the very first to study this disease, gave it the name of intra-acinous cystic epithelioma, showing that he recognized clearly enough its potentialities. It is therefore to be regretted that his first observations were for a long time forgotten. It were much better had the pathologic name which he

Fig. 2.—Side view of growth shown in Fig. 1.

first suggested been generally adopted instead of calling the disease by the name of one who so accurately described it.

Cancer and abnormal involution are the two most common diseases of the breast, as will be seen by an analysis of two hundred of my consecutive private cases (Table 1).

Fig. 3.—Ulcerating tumor.

TABLE 1.—DISEASES OF THE BREAST IN TWO HUNDRED CASES

	Number	Per Cent.
Carcinoma	83	41.5
Abnormal involution	67	33.5
Benign tumors	30	15
Papillary cyst adenoma	6	3
Tuberculosis	6	3
Sarcoma	5	2.5
Galactocele	3	1.5
Total	200	100

If we add the six cases of papillary cyst adenoma to the sixty-seven of abnormal involution we have seventy-three so-called benign cases and eighty-eight malignant ones in a series of two hundred. Hence they are about equally common. The potential malignancy of papillary cyst adenoma is much greater than that of abnormal involution, as the tumors in five of my six patients showed marked cancerous degeneration. In fact, I no longer consider this disease as benign. That it begins as such is true, perhaps, but it so quickly tends to assume a malignant phase that it is safe only to consider it as malignant and to treat it in the most radical manner. The same is equally true of Paget's disease. The eczema of the skin is the secondary manifestation of duct cancer and is due to the irritating discharge from within the ducts. The proof of this is found in the fact that the deeper we go, the more marked evidence we have of malignancy, whereas, if the superficial condition were the original one the reverse would be true. Thin, Raymond Johnson, Williams and others were fairly prompt to controvert the views of Sir James, but the latter's more commanding position and his forceful presentation of his case caused his view to be accepted as an ex-cathedra utterance.

How is cancer of the breast to be treated? Understanding as we now do, that it is strictly a local affection primarily, the answer should always, and without exception, be as direct and positive as language can make it. Free and early excision by the knife is the only thing to be considered, because one can never tell the extent of the disease until the lesion and surrounding tissues have been examined by sight, touch and the microscope so that the surgeon may know that his work has been rightly and thoroughly done. Hence the utter futility of caustics, radium, Roentgen rays, etc. There are conditions less pitiless and destructive in their nature in which second- and third-best remedies may be used if, through a fancied dread of a surgical operation, the patient insists on them. But cancer is not one of them, and the medical man is recreant to his trust if he does not protest against a course which means almost certain disaster. The danger of an operation at this time is, at the most, one-half of one per cent., and if performed early nearly all will result in a permanent cure. Even when cancer has been present for a year the chances of success are about equal. After more than a year's duration one-third, one-fourth or less will be cured, according to the extent of the growth, its location, the age of the patient and other circumstances. Can more reasonably be expected of any treatment for a disease that will almost certainly prove lethal in thirty-six months without treatment? Cancer is curable and its existence in the breast, or other external organs, should, from its very nature, be evident quite soon; therefore the responsibility for so many deaths (18,000 annually from cancer of the breast in the United States[1]) rests with the hesitating hosts or the equally dilatory physician who is first consulted. It is no fault of the cancer, for there is visible evidence of its presence long before it has ceased to be a local and removable enemy. But both patient and physician may answer, "Yes, I knew there was a tumor present, but did not suspect that it was serious." Lumps or tumors of the breast are always serious and presumably malignant until the contrary is established, for I have shown that of 200 of my private patients taken consecutively, 161 were either malignant or potentially so. Add to them the six cases of tuberculosis, in which it is almost as necessary to have a radical operation, and the number is increased to 167. With such melancholy facts staring one in the face,

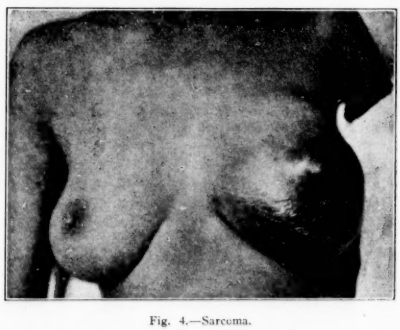

Fig. 4.—Sarcoma.

why will women and their family physicians continue to act as little children who play with fire? It passeth all understanding, yet they do. Those who act promptly are as the wise, those who are tardy as the foolish virgins. Does not the drowning person catch at anything, even straws, before going down? But the victims of early cancer have a life boat into which

1. There were 75,000 deaths from cancer, and it is customary to estimate that 25 per cent. approximately were due to mammary carcinomas.

they may enter at any time, yet they sink. We must be patient with them, for the same persons have been both blind and deaf to the progress of medicine in many other directions, as they have refused to allow their children to be vaccinated, denied them antitoxin when stricken with diphtheria, declined a timely operation in appendicitis and strangulated hernia, even refusing, though abundantly able to give them everything that wealth and supposed enlightenment offers, any medical treatment at all. Education! education! education! must be given them, and it is our solemn and bounden duty to give it. They may reject our advice and run after false gods once, but a single lesson should suffice.

I have spoken in a general way of the benefits of early operation and the hazards of delay. Let me now be more specific and speak of results in average cases, taking them as they present themselves to surgeons for operation, some of them coming early, some fairly early, others late, and others still very late. Private patients, being more intelligent and having the ability to seek timely relief, give us much better results than are found in those whose lives are a constant struggle with adversity. Moreover, their appreciation of the dangers surrounding them keeps them in closer touch with their medical attendants; therefore far more accurate records may be kept concerning their after-history. For this reason I prefer to limit my statistics to private patients concerning whom everything is known, even though the aggregate will be less, rather than to include many others of whom little or nothing is known. Certainly, I maintain, accuracy is best subserved by so doing. Ward patients will not, as a rule, keep in touch with the surgeon after they leave the hospital and, as I am unable to give, even approximately, the condition of many, all are excluded.

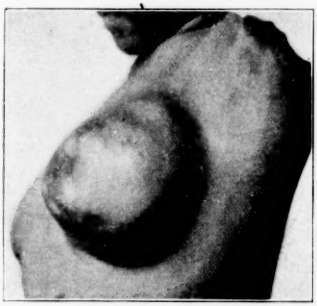

Fig. 5.—Sarcoma.

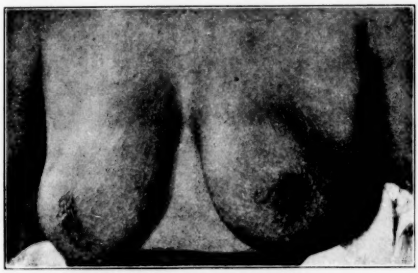

Fig. 6.—Paget's disease.

Volkmann thought that if patients were free from recurrence at the end of three years after operation, a radical cure could be affirmed. Until recently surgeons everywhere accepted the teachings of this great surgeon. It is even now customary to measure our results by this standard, though many believe, and I am one of them, that a five-year period is better, as an additional 10 per cent., possibly more, of recurrences will take place or, to speak more accurately, be manifest between the three and five year periods. It is questionable if any actually do recur after three years, but, as stated, they become evident, though hitherto obscure. For all practical purposes it is a fair rule, if we admit the few exceptions. Of fifty private patients taken consecutively,[2] thirty-six (72 per cent.) are well three or more years after operation, thirteen are dead, and one has a recurrence in the mediastinum and is, of course, counted as lost. So, fourteen are either dead or soon will be (28 per cent.). To show that I have not picked my cases, the woman living with a recurrence (Figs. 1 and 2) was operated on Nov. 11, 1911, before a number of surgeons attending the Clinical Congress in Philadelphia, and it was stated that she had been refused operation by a prominent surgeon of Philadelphia on the ground that her case was inoperable. There has been no recurrence *in loco*, which shows that the growth in the breast was not inoperable. Mediastinal symptoms were not present until nearly three years after operation. Of these fifty cases there were six with such extensive axillary involvement that I was compelled deliberately to resect the axillary vein to get rid of all apparent disease and make a thorough axillary dissection. In ten of them the subclavian triangle was explored (on account of high axillary involvement or peripherally lying tumors), though most of them were found to be without disease. I have never cured a patient with supraclavicular involvement. I do not consider it as necessarily an inoperable condition as others (Johns Hopkins and Massachusetts General hospitals) report undoubted instances of cure. It is a distinctly unfavorable omen and was universally considered as a barrier to operation until Halsted proved by his results that it was not. Two of my patients had ulcerating tumors, and one of these had been denied operation by another surgeon. This woman lived more than six years without the slightest evidence of recurrence, and finally died of paralysis at the age of 72 (Fig. 3).

A summary of the thirty-six living patients shows that operations were performed as indicated in Table 2.

TABLE 2.—SUMMARY OF OPERATIONS ON THIRTY-SIX PATIENTS LIVING

Year	Number	Months
1899	1	January
1900	2	May, December
1901	1	October
1904	3	July, September, December
1905	4	September, 2; November, 2
1906	6	February, 2; July, 1; September, 3
1907	1	December
1908	4	March, May, October, November
1909	2	April
1910	6	January, April, June, July, November, December
1911	6	January, 1; April, 2; October, 2; November, 1

There are seven who have passed the ten-year period, twenty-four who have gone five years, thirty,

2. Three cases of acute carcinomatous mastitis are excluded; all were quickly fatal. I now believe the condition inoperable.

four years, and thirty-six three years. In nearly all of them the functional use of the arm is as good as it ever was. A few of the earlier ones who were grafted show slight impairment due to a contraction of the skin. In none of those operated on since 1906 by the method I now employ is there either impairment of function or edema. Loss of both pectoral muscles does not in the least curtail the usefulness of the arm.

None of the cured patients operated on prior to 1909 (twenty-four) were given a course of Roentgen-ray treatment subsequent to operation, it being reserved for those with recurrences. Latterly I have secured, through the cooperation of my colleague, Dr. Pfahler, results which warrant its employment in the more advanced cases. In those of average severity, also, unless I feel satisfied as to the thoroughness of removal, it is employed. In early cases I can see no reason for its use. In several very advanced cases I have been inclined to give at least a part of the credit to Roentgen-ray treatment subsequent to operation. One such patient from Atlantic City was operated on in July, 1910. I did not believe that she would live a year. At my request, she was reexamined, along with nearly all of the cases here reported, November, 1914, and was examined also by a number of visiting members of the American College of Surgeons. She is absolutely well in every way.

Since March, 1913, at least three patients operated on were so advanced that the Roentgen rays were sent into the wounds in great concentration before they were sutured, as no hope of a radical cure was entertained in any of them. One, with a very large sarcoma, died in six months (Figs. 4 and 5).

One, a case of Paget's disease (Figs. 6 and 7) with one of the very worst axillas I have ever encountered, showed a recurrence in the neck in thirteen months. The neck had been explored at the time of operation with negative result. This woman, who is alert and of quick perception, assures me that she consulted me two weeks after she noticed the inflammation and ulceration around the areola and nipple. She could not have suffered from cancer less than from eighteen months to two years, and this statement was made in my notes taken the day she came to me from Wellsboro for operation. She had no pain or other symptom, and believed herself to be well until the trouble with the nipple and areola began; and it was for this that she first consulted Dr. Longwell, and not for the cause of it. It proves that the affection of the nipple and areola is usually a secondary or terminal process, as I have always maintained.

The third patient to receive Roentgen rays into the wound before suturing is apparently well in every way more than fifteen months after operation. She was also examined, this month, by a number of visiting surgeons and myself.

But, grateful as I am for the assistance of the Roentgen rays or any other agent in combating so protean an affection as cancer, I wish to state most positively that they have no place in the treatment of cancer of the breast *until after operation*. They will cure epitheliomas of the skin and superficial sarcomas which may be inoperable. This I have witnessed more than once. But I have yet to see a single patient with mammary carcinoma passing the three-year limit in whose case the credit could fairly be given to Roentgen rays. They are in my judgment and experience much better than radium, as the only two patients I have submitted to the latter treatment were unquestionably made worse by it and quickly succumbed. This was their opinion and it is mine.

To treat an operable neoplasm of the mammary gland by either electricity, radium or Roentgen rays has no justification whatsoever, pathologic or clinical. We have heard entirely too much of radium and its marvelous cures and have had too little verification of its beneficent powers. Whatever it will do, Roentgen rays will do better. The latter are available to poor and rich alike, while only the wealthy can afford to travel in their private cars across the continent chasing this *ignis fatuus*. The German surgeons have tried it out, abandoned its use, and warned the public against it. The storm in America has about passed, the air has been clarified, the damage estimated, and, like lightning, it has struck in only a few high places.

2106 Walnut Street.

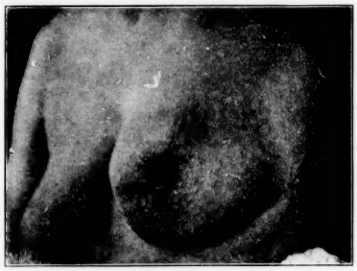

Fig. 7.—Paget's disease.

BUYO CHEEK CANCER

WITH SPECIAL REFERENCE TO ETIOLOGY *

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In my early work at the Philippine General Hospital, Manila, I was impressed with the frequency of cheek cancer in women, and also with the almost universal habit in elderly persons of chewing buyo. The possibility of buyo as an etiologic factor in mouth cancer occurred to me, and accordingly I have studied all the cases at my disposal and reviewed the histories of all cases of mouth cancer that are recorded at the Philippine General Hospital.

The histories which I reviewed are of patients who were under the care of Drs. John R. McDill, P. K. Gilman, R. Rembe, Hans Ernst Schiffbauer and of patients from my own service. The photographs for the most part were made by the Bureau of Science.

In presenting this paper, I wish first to discuss in some detail the various constituents of the buyo chew; secondly, to discuss the prevalence of the habit and customs in connection with it, and thirdly, after presenting the cases in a more or less outline form, to consider the essential findings in these cases and draw conclusions from the data hereinafter given.

The name "buyo," which is commonly used and applied to the "chew" that is indulged in, is not in all cases strictly definite, as the constituents of the combination are generally four in number: the buyo leaves, the betel-nut, slaked lime and tobacco.

* Read before the Manila Medical Society, March 2, 1914.

It is true that the buyo leaves alone at times are chewed, but this is probably not from choice but rather because of lack of opportunity to obtain the other principles, or because of insufficient funds to buy them. So in this paper, when the term "buyo chew" is used, it will mean, as is commonly understood, the whole: all the constituents of the combination rather than the buyo leaves alone. In India the word "pan" is similarly employed referring to the leaf alone or to the leaf with the other constituents.

THE BUYO LEAF

The botanical name for the buyo leaf plant is *Piper betle*, Linn. (natural order, *Piperaceae*). The term "buyo" is of Visayan origin, but this is used quite commonly by the Tagalogs and other peoples of the Philippine Archipelago.

The cultivation of the betel-leaf plant is pursued with more careful attention than any other economic plant in the islands. No pains are spared in providing the roots of this plant with abundant air, water and food. Its leaves and stems are protected against insects, wind and sunshine.

Many families in Pasay, Rizal Province, near Manila, make their livelihood by growing these leaves for the market. Each plant occupies an area of from 30 to 70 cm. (from 12 to 27½ inches) and one family will care for as many as 1,500 or 3,000 plants (Fig. 1).

The regulation of the water supply to the plants is important, as either a lack of or an excessive amount of water retards the growth. All the Pasay gardens are irrigated, and on days when it does not rain, water is supplied by well-sweeps. To prevent excess of water after a hard rain-storm, and during the rainy season, a trench one meter deep is dug around each plot. For the same reason, when the garden is plotted out it is arranged so that it resembles a gently sloping roof; the ridge at the center of the plot runs the entire length and is about 25 cm. (10 inches) higher than the soil along the two lower edges. In some plots the soil slopes in but one direction. In others, however, the two halves of a plot slope toward each other.

A porous soil is best suited as it allows free circulation of both air and water, which promotes rapid root growth and in turn rapid growth of stems and leaves. Impervious soils are made porous by addition of sand, lime and decaying vegetable matter.

As the vines mature the stems are tied to bamboo sticks which are about 3 meters (10 feet) high. The bamboo sticks in each row are firmly tied to a long bamboo strip that runs the entire length of the row, 2 meters (6½ feet) above the ground. Other cross-pieces of bamboo are placed 60 cm. (2 feet) apart and firmly tied to the long strips. Over these cross-pieces a few banana and palm leaves are usually laid to protect the tender leaves from the sun, as properly shaded vines produce the more desirable larger and thinner leaves which bring a better price in the market. Protection from objectionable winds is obtained by surrounding the plot with a jungle growth of coconut and bamboo trees, and banana or other plants.

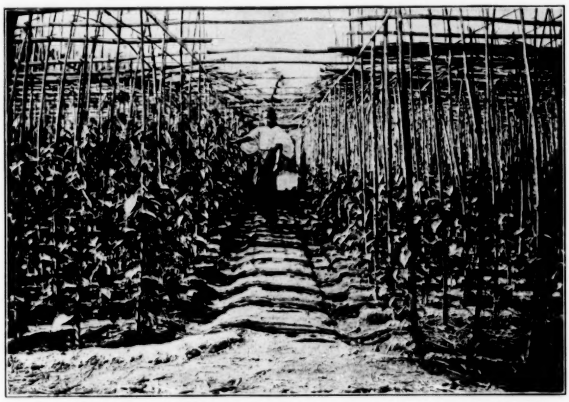

Fig. 1.—View of buyo vineyard, in Pasay, showing the careful arrangement of vines about the bamboo sticks and the cross-sticks above, over which material is placed to protect the young leaves from the hot sun and hard rains and winds; on each side of the center path are the irrigation canals. Photograph by C. H. Storms.

There are three varieties of betel leaf: the Sañghilo, the Pula and the Kinalabao. The Sañghilo has hard, dark leaves. The Pula are large, pale, green leaves which are very tender and more highly priced than the dark green leaves of the Sañghilo. The Pula plants are delicate and will not produce larger leaves unless fed and watered regularly. The Kinalabao plants produce many large, coarse, fibrous leaves which are less desirable and usually not for sale in the market, unless the Pula happen to be very expensive on account of a short crop.

The desirable leaves on each plant are gathered once a week. When the terminal leaf on a stem is from 6 to 8 cm. (2½ to 3 inches) long, the second and sometimes the third leaves on that stem are ready to be pinched off. Each week a plant supplies from five to eight leaves. At wholesale prices one centavo (one-half cent, gold) is paid for from four to fifty good leaves. In rare instances 100 leaves bring but one centavo. In the market the leaves are assorted and divided into first, second and third class. The first-class leaves are the larger, wider, tender, pale green leaves and are sold two for one centavo. The second class, which are not so wide and are tougher, are sold five for one centavo. The third class or least desirable are sold at the rate of seven for one centavo.

In India betel leaves are chewed either in their natural green condition or after they are bleached by placing them in baskets where they are kept damp and dark for from eight to twenty days. Bleached leaves are usually worth three times as much as green ones. The essential oil is the constituent which gives the leaves their value. Green leaves contain about 1.23 per cent. of essential oil and bleached ones from 4 to 5 per cent.

The leaf is considered of value also for its therapeutic properties. In India the midstem of the leaf stripped of the leaf proper is inserted into the rectum of constipated children. In the Philippine Islands it is used extensively as an application to superficial ulcers, wounds, inflammation, etc.

THE LIT LIT VINE

When the buyo leaves are not obtainable the lit lit leaves (Fig. 2) are used as a substitute. This vine is easily grown and demands but little attention. The leaves, however, are not so desirable as they are rather tough and are not used when the buyo leaf can be obtained.

THE BETEL-NUT

The betel-nut, which is an important constituent of the buyo chew, is the fruit, or as it is popularly termed, nut of the areca or betel-nut palm (Fig. 3). The proper botanical name of this palm is *Areca catechu*, Linn.; *Palmaceae*.

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The palm has a straight cylindrical stem from 12 to 15 meters (40 to 50 feet) high, at the top of which branch many graceful, long, gently curved palm leaves. The nuts are in clusters at the level of the junction of the palm leaves. When fresh picked they have a tough, shiny skin-like husk or covering (Fig. 4 *a*) which, when the nuts are dried, becomes loose and separates into fine tough thread-like fibers (Fig. 4 *b*).

The husked nut itself (Fig. 4 *c*, *d*) is conical and of dense, solid consistency throughout and cuts with considerable resistance.

The nut is rich in tannic and gallic acid, and the young nut on account of its astringent property is used to check diarrhea and in cases of superficial ulcers. In India the unripe nuts are viewed as a laxative and a carminative, and a paste is made of the powder of the dry or burnt nut and is used as a dentifrice. In Europe the ripe fruits have been employed as an anthelmintic and astringent. Most writers affirm that occasionally the nuts (especially when eaten fresh) are found to possess intoxicating and poisonous properties. This is believed to be an accidental peculiarity of certain trees. This poisonous property has been ascertained to be destroyed by boiling, and hence, no doubt, the custom has come into existence of preparing the nuts for market by various methods of cooking.

The powdered seeds have also long held some reputation as an anthelmintic for dogs, and areca has now been introduced into the British Pharmacopeia on account of its supposed efficacy in promoting the expulsion of the roundworm (*Ascaris lumbricoides*).

Commercially it is used in making a red dye by boiling with lime.

Lime is a regular ingredient of the buyo chew, and is spread on the piper betel leaf (Fig. 5) before it is folded and wrapped about the disk of nut. The purpose of the lime is to give a pleasant, sweet taste to the chew, which, when taken without the lime, is bitter and not so desirable. It also has a chemical action on the betel-nut and leaf which produces the red color and dyes the oral mucosa red and the teeth black.

The lime is carried in one of the compartments of the buyo boxes which are so extensively used by the Moros. The inroads that are made on the brass compartment by the lime is more than a gentle suggestion that here we have a clue to the source of irritation which produces the lesions so frequently found in the cheek.

The lime is obtained from sea shells. The shells are burned, thus driving off carbon dioxid from the carbonate, and calcium oxid or quicklime is produced. This quicklime is mixed with water which it readily absorbs, and slaked lime or calcium is produced.

In the markets, this slaked lime wrapped in banana leaves (Fig. 6) is sold, and a small handful of lime brings one centavo. The lime obtained from shells is objected to, however, as a part of the buyo chew, by certain Hindus, on the ground that it is derived from animals.

Tobacco leaves have long been a constituent of the buyo. Before the American occupation of the Philippines, plug tobacco was seldom, if ever, used. Now the buyo is flavored by an accompanying chew of American plug cut tobacco or a native tobacco, which though put up in the shape of a cigar, is in reality a plug cut (Fig. 7).

The leaves are cut longitudinally into three parts (Fig. 5), on one of which is placed a smear of lime. These three pieces of the leaf are now folded together containing the lime and are ready to be wrapped around a disk or cross-section of the betel-nut.

For additional flavor other substances such as cloves, cardamom, nutmeg or camphor are also sometimes used.

Since the introduction of plug cut tobacco into the chew, dating from the time of the American occupation, plug cut chewing tobacco has been popularized. Statistics have been quoted showing the growing preference of Filipinos for chewing tobacco rather than buyo. Recently, however, an amendment to the internal revenue law of the Philippine Islands has placed a tax of 48 centavos per kilogram on chewing tobacco. This is 33 per cent. higher than the tax imposed in the

Fig. 2.—A lit-lit vine and a native nipa shack. This leaf is sometimes used when the buyo leaf cannot be obtained. The vine is more easily grown and more rugged, but the leaf is not so desirable, as it is rather tough. Photograph by the Bureau of Science.

Fig. 3.—A group of betel-nut palms, growing in Pasay, Province of Rizal, near Manila. Photograph by the author.

Fig. 4.—The betel-nut; showing (*a*) the newly picked nut with smooth shiny husk; (*b*) the dried nut with ragged shreddy husk; (*c*) the nut husked and (*d*, *d*) the nut in cross-section.

United States. A member of the legislature is reported to have given as his reason for the higher tax that the people could use buyo.

Elderly persons who have acquired a taste for chewing buyo, but are no longer able to masticate the hard nut because of loss of their teeth, have a special method of preparing the chew. A contrivance known as the "calicut" is employed. That is, a disk of hard wood is placed within and at the node, or transverse portion, of a hollow segment of bamboo stick. Then within the hollow bamboo are placed buyo leaves, betel-nut and lime, and these are minced into fine particles by a flat spatula-like knife. This forms a pulp or paste-like mass which is then chewed. The old men carry the calicut around with them in their belts, and when they desire a chew it is prepared fresh each time. The calicut of the wealthier class is frequently made of silver.

HISTORY OF THE CHEW

The habit of chewing buyo, or "pan" as it is called in India, has been a custom with oriental tropical people for many centuries. It is estimated that one-tenth of all the people on the earth chew this mixture. Sir George Wat[1] writes:

> From the most ancient times the presentation of pan has been the polite termination of ceremonial visits. . . . The name "betel" or "betle" is Malayan in origin and simply means "a leaf," and came to English through Portuguese *betre*. The best-known vernacular names for the nut are supári, hopári, gua, gaya, kasaile, mari, tambul, pokavaka, oka, kamugu, adike, kunsi, etc.
>
> It would seem that the earliest historic reference by a European to the habit of chewing betel-nut occurs in the writings of Marco Polo (1298 A. D.). "All the people," he wrote, "have the habit of keeping in the mouth a certain leaf called tembul." Subsequently Vasco da Gama (in 1498), Verthéma (in 1510), Barbosa (in 1516), Garcia de Orta (in 1563), Acosta (1578, 1594), Abul Fazl (in 1590), Linschoten (1598), François Pyrard (1601), Roe (in 1615), Jacobus Bontius (1629), Bernier (1656-68), Boym (1656), Vincenzo Maria (1672), Travernier (1676), and Catchpoole (1703) (cf. Yule, Diary of William Hedges, ii, 331), all give similar accounts. Adams in his translation of Paulus Aegineta refers to the betel-nut as introduced to materia medica by the Arabs. He quotes amongst others the passages referring to it from Avicenna, Haly-Abbas, Abn Baithar, Elmasudi, Serapion and others. Abn Baithar says that it is the fruit of a palm, and observes that it is a gentle purgative, makes the breath fragrant, is a cordial and strengthens the gums and teeth. Linschoten remarks that "the Indians goe continually in the streets and waies with bettele or bettre and other mixtures in their hands, chawing, especially when they go to speake with any man, or come before a great lord." Abul Fazl apparently never saw the palm growing, since he likens it to a cypress tree that in the wind sways till it touches the ground. This circumstance may be accepted as showing that from very ancient times, as at the present day, the nut has been carried to regions remote from the areas of its production. Numerous publications have appeared within the past century that deal with the betel-nut, as met with in India.

Fig. 5.—Cut betel leaf, lime and a disk of betel-nut. In preparation for chewing, the betel leaf (*a*) is cut longitudinally into three pieces; the lime (*b*) is placed on the leaf; the three pieces of leaf with the lime are folded longitudinally on themselves (*c*) and this is wrapped about a disk or cross-section of betel-nut (*d*).

Fig. 6.—Slaked lime, made from sea shells, and wrapped in banana leaves, as sold in the Manila market for one centavo.

Fig. 7.—Showing (*a, a, a*) the various ingredients combined and the "chew" ready to be introduced into the mouth where it is generally held between the cheek and the teeth as one holds a chew of tobacco; (*b*) a piece of American plug cut tobacco and (*c*) a plug cut of native tobacco, one or the other of which is generally used to flavor the chew.

In the Philippine Islands and Zulu Archipelago, the buyo is almost universally chewed by adults and often by children of tender years. I have seen it used extensively in different parts of the Island of Luzon, Island of Samar, Island of Cebu, Island of Iloilo and in Parang, Zamboanga and Jolo, and by the Moros on the Island of Mindanao.

It has been estimated that 90 per cent. of the elderly persons in the islands chew buyo.

In Jolo I had the opportunity of an interview with the Sultan of Zulu. In regard to chewing buyo and its causing cheek cancer, the sultan stated that all the Moros were great buyo chewers; that among these people he himself had often noted growths on the inside of the cheek; that they never became cured of these growths and that he also believed that chewing buyo caused it. The sultan himself is an inveterate

1. Wat, George: The Commercial Products of India, p. 83.

buyo chewer, and as he conversed, frequently used a beautiful colored glass cuspidor, placed on his desk, to expectorate into.

The buyo boxes carried by the Moros are of various sizes, shapes and material. Boxes are made for individual use which are carried around by the owner

Fig. 8.—A Moro datto (chief) and staff, showing the buyo carrier in back row to the right with a large box. The officer in uniform is a captain in the constabulary. The buyo is carried as commonly in the islands as cigarets and cigars are in the United States. Photograph by the Bureau of Science.

slung over his shoulder by a chain or cloth handle, or bound to the body by a cord about the waist. Larger boxes are used at home and passed about by a buyo carrier when the buyo is offered to company. A buyo carrier is a part of a Moro datto's (chief's) retinue (Fig. 8). The women, who are possibly greater chewers than the men, also have buyo boxes and buyo carriers (Fig. 9).

The boxes are made of brass and frequently inlaid with silver, which is mostly obtained by melting and hammering out old Spanish coins.

In reviewing my series of 49 cases of cheek cancer, I find a positive history of chewing buyo in 40, or 81 per cent. In no case is there a history of not chewing buyo. In only 9 cases of this series of cheek cancer does it remain a question whether the patients did or did not chew it.

The length of time these patients had been chewing buyo before the growth appeared varies from three years, the shortest time, to sixty years, the longest, or an average, when we had this question of time definitely answered in 17 cases, of thirty-five years.

It occurs in women more frequently than in men. Of 49 cases, 34, or 70 per cent., were in women. The women chew buyo more than the men.

It is essentially a sickness of advanced years; the youngest patient was 23 years old and the oldest 86. The average age of forty-nine patients is 52 years. Of the forty-nine patients, thirty-three, or 67 per cent., were married; fourteen, or 30 per cent., widowed, and two, or 4 per cent., single.

In twenty cases, that is, in every case in which the question was put to the patient, the site of lesion corresponded definitely to the position in which the patient was accustomed to hold the chew. The patients themselves often volunteer the information that the buyo caused the lesion and that that was the side on which the chew was held.

The lime is, I believe, the essential or direct cause. However, the chemical properties of the leaves, containing essential oil, and the chemical properties of the nut, containing tannic and gallic acid, may be predisposing factors. Sometimes a rather large quantity of lime is used, and the patient states that this causes a "burning" sensation and often irritates the cheek.

That the betel-nut is a predisposing or an accessory mechanical factor is shown forcibly in one case. This patient had previously chewed buyo, and an epithelioma of the left gum developed. The left jaw was resected by Dr. Burdette, three months before I saw her. She attributed the origin of the growth to the action of the lime in the buyo. Hence since her operation she has not used any lime whatsoever, but has chewed only the betel-nut which had been chopped up fine by the use of the calicut, as she is no longer able to masticate the nut because so many teeth are missing.

In this case numerous white pin-point to pin-head sized white deposits of betel-nut pulp are scattered over the mucous membrane of the lower lip and the gum of the mandible and the roof of the mouth, and hard and soft palate. When these white areas are scraped from the mucosa, a small bleeding ulcerated area results. Thus we see that the betel-nut may aid

Fig. 9.—A Moro datto's (chief's) wife, her retinue and buyo carriers, the second and the third on the right and the first and third on the left. The women are greater buyo chewers than the men. Photograph by the Bureau of Science.

or prepare in a mechanical way an ulcerated area for the chemical action of the lime.

The clinical history of the patients suffering from buyo cheek cancer are strikingly similar. The first symptom the patients note is an involvement of the inner aspect of the cheek. This is constant and true of all the cheek cases. At first a small elevated growth in the mucosa of the cheek is noted (Fig. 10). Early ulceration of the growth is complained of, and sometimes the patients state that the growth began as an ulcer. Pain is a constant symptom and is frequently slight and confined to the site of lesion itself, but often accompanied by a severe pain of a referred type, radiating to the angle of the jaw or parotid and submaxillary regions. A burning sensation is at times complained of.

The growth of the tumor progresses slowly, takes on a cauliflower-like shape and soon projects from the mucosa into the oral cavity between the two rows of teeth, making mastication painful and often impossible.

Abscess formation in the tumor mass is a frequent complication, and when this ruptures spontaneously sinuses may result opening either externally or internally, or both. A foul, disagreeable odor is present in these cases.

Bleeding occurs freqeuntly when the growth has become enlarged and fungus-like, as the growth is readily irritated by the teeth and food and by the movement of mastication or by being touched during examination.

Fig. 10.—A case of buyo cheek cancer.

Fig. 11.—A case of buyo cheek cancer.

The mucosa of the lips, tongue and entire oral cavity is colored a bright red and the teeth a dark brown or black by the buyo. The teeth in the region of the growth fall out early as the extension of the growth from the cheek to the neighboring gums proceeds.

From the initial lesion in the mucosa of the cheek the extension of the growth progresses upward, downward, posteriorly and anteriorly, and also by perforation through the cheek. Accordingly, the secondary involvement includes the upper gum, lower gum, tonsil and angle of the mouth. The outer surface of the cheek may be involved in one of two routes, namely, by extension from within from the angle of the mouth involving the cheek in a cauliflower-like mass (Figs. 11 and 12), or secondarily by perforating the cheek, the angle of the mouth not being involved (Fig 13).

The regional submaxillary lymph-glands become enlarged and indurated, but general metastasis is rare.

At my request, Dr. B. C. Crowell, associate professor and chief of the Department of Pathology in the University of the Philippines, has reported as follows on the histology of the surgical pathology specimens removed from a number of cancer of the cheek cases from my service at the Philippine General Hospital:

Fig. 12.—A case of buyo cheek cancer.

Fig. 13.—A case of buyo cheek cancer, showing the extension through the cheek.

Small portions of tissue from the inside of the cheek have been submitted to me for histologic examination from twelve cases, and in one of these cases a small portion was also submitted from the outside of the cheek, the lesion having been said to have extended from within outward.

Sections from these tissues have all shown the structure of an epithelioma or carcinoma originating from pavement epithelium. There has been a remarkable similarity in the general characters of the microscopic lesions in the different cases, so that a brief description of the histology of one case may be considered as applying to all cases. There is marked downgrowth of the epithelium below its normal limiting basement membrane in the form of dense strands, with a very marked tendency to the formation of epithelial pearls and apparent separation of masses of epithelium from direct continuity with that on the surface. The pearls, which form so large a part of the structure and have been seen down in the muscle tissue, are frequently almost homogeneous in appearance, having undergone hyaline degeneration or extensive keratinization. The intervening stroma occupies a relatively insignificant part, but in all cases has shown extensive round-celled infiltration. Practically all of the cases have shown a greater or less grade of ulceration, but in none of the cases examined has there been any conclusive evidence that the tumor originated on the basis of a preexisteing ulcer.

I have had the opportunity of seeing several of these cases clinically and almost all showed extensive growth and ulceration. One early case, however, was seen, which presented a circular, flat, elevated growth on the inner side of the cheek. This was pale gray in color, and its surface was smooth and glistening, with no evidence of ulceration, being apparently entirely covered by mucosa. In this case, at least, the growth apparently did not originate on the basis of an ulcer, and it is supposed that the other cases were similar in their earlier stages. This would seem to remove these cases from that large class of cases which includes those following specific ulcerations such as tuberculosis or syphilis and gastric carcinomata originating on preexisting ulcers. It would suggest that they might be added to the class of cases which follow prolonged exposure to chemical irritation such as occurs in workers in paraffin and arsenic.

Fig. 14.—Photomicrograph of a section of tissue removed from buccal growth.

PROGNOSIS

The prognosis of buyo cheek cancer is not favorable. If not operated on, the growth becomes an enormous unsightly mass, and metastasis to regional glands occurs. The primary growth ulcerates, becomes infected, and large sloughing defects result. If operated on, the prognosis is also poor. This is because the patients do not report to the surgeon until the growth is extensive. Then a radical operation, removal of the cheek and a plastic operation from neck or forehead and scalp, is necessary. In this operation the mortality from aspiration pneumonia is high. In no case of this series did an operation give a permanent cure.

TREATMENT

The question of treatment of buyo cheek cancer is worthy of the most serious consideration. The surgical treatment is unsatisfactory. A radical or a palliative measure may be indicated. In early cases, which unfortunately are rarely seen by the surgeon, when the involvement is more or less limited and the regional glands not involved, a wide removal of the cheek and regional lymphatic glands followed by a plastic operation is the only hope of permanent cure.

If the mass is very extensive and extends into the oral cavity, between the two rows of teeth, making mastication impossible, some relief is obtained by a palliative operation, making use of the curet and electrocautery.

SUMMARY

We find, thus, cancer of the cheek as a common lesion in a country where buyo is universally chewed. It occurs more frequently in women than in men. In 100 per cent. of cancer of the cheek cases in which the question was put we find that the patients chewed buyo. The site of the growth in the cheek corresponds to the position in which the buyo was held. The patients themselves attribute the origin of growth to the chewing of buyo. In this group of seventy-five cases of oral cancer we find that forty-nine, or 65 per cent., are cancer of the cheek, a percentage found in no other than a buyo-chewing country.

Cancer of the cheek in Europe and in North America, countries where buyo is not chewed, is a comparatively rare lesion, especially in women.

In buyo cheek cancer we find a lesion which, etiologically, clinically, pathologically and from the point of view of course and prognosis, may be regarded as a definite and separate lesion having its own entity. It is as definite and constant etiologically, clinically and pathologically as are the Roentgen-ray epitheliomas, the kangri skin cancer of India, the epitheliomas of the arms of paraffin makers and the chimney sweep's cancer of England.

CONCLUSION

Cancer of the cheek, so commonly seen in the Philippine Islands, is caused by chewing buyo, and the active agent is the lime.

Buyo cheek cancer is a distinct, definite and separate disease of oriental tropical persons having an entity as definite as the Roentgen-ray epithelioma occurring on the hands of the early Roentgen-ray workers, as the kangri skin cancer of India, or the skin cancer on arms of paraffin workers and the brand cancer of cattle of the United States and the chimney-sweep's cancer of England.

Histologically, we find the picture of an epithelioma, and the epithelioma may be best classified with the group of epitheliomas known as skin cancer, produced by chronic irritation, which may be actinic, thermal, chemical or mechanical. In the case of buyo cheek cancer it is chemical, the action of the lime.

As this is a very common lesion in the Philippine Islands, and as the surgical treatment is far from satisfactory because the cases are too frequently seen too late, an educational campaign is advisable to teach the evil results of buyo chewing and to encourage a prophylaxis, to be gained by an entire stopping of the buyo habit.

SUMMARY OF SEVENTY-FIVE CASES OF ORAL CANCER, FORTY-NINE IN THE CHEEK AND TWENTY-SIX IN ORAL STRUCTURES OTHER THAN THE CHEEK

CANCER OF THE CHEEK CASES

Series No.	Age	Civil State*	Sex†	Buyo Chewers‡		Site of Lesion
					Years	
1	48	M	♀	+	15	Left buccal mucosa.
4	51	M	♀	?	..	Right cheek.
5	23	M	♀	+	..	Right cheek.
6	50	M	♀	+	..	Right cheek.
7	50	W	♀	+	..	Right cheek.
8	35	M	♂	+	..	Right cheek.
9	40	M	♀	+	..	Right cheek.
10	73	M	♂	+	60	Left cheek.
13	27	M	♀	?	..	Right cheek.
14	60	M	♀	+	40	Left cheek.
16	45	M	♂	?	..	Left buccal mucosa.
18	52	M	♂	?	..	Left cheek.
19	50	S	♂	?	..	Right cheek.
20	65	M	♀	+	..	Right cheek.
22	80	W	♂	+	..	Left cheek.
23	60	W	♀	+	..	Left cheek.
24	86	M	♀	+	..	Right cheek.
25	56	W	♀	+	..	Left cheek.
26	50	M	♂	?	..	Right cheek.
27	55	M	♂	+	..	Right cheek.
28	30	M	♀	+	..	Right cheek.
30	60	M	♀	+	..	Right cheek.
34	60	S	♀	?	..	Right cheek and gum.
35	46	W	♀	?	..	Buccal surface, cheek.
39	50	M	♀	?	..	Inside, left cheek.
40	35	M	♀	+	..	Inner side, left cheek.
41	48	M	♀	+	..	Inner side, right cheek.
42	58	W	♀	+	..	Right cheek and gum.
49	50	M	♀	+	..	Inner side, left cheek.
50	59	W	♀	+	..	Inner side, left cheek.
51	36	W	♂	+	..	Inner side, left cheek.
52	59	W	♀	+	..	Left cheek.
53	58	W	♀	+	..	Right cheek.
57	53	M	♂	+	..	Inner surface, right cheek.
58	50	M	♀	+	..	Mucous surface, left cheek.
61	56	M	♀	+	37	Left cheek.
62	50	M	♀	+	40	Left cheek and gum.
63	70	W	♀	+	45	Middle side, left cheek.
64	45	M	♀	+	40	Left cheek.
65	67	W	♂	+	30	Right cheek.
67	49	M	♂	+	20	Right cheek.
68	48	M	♂	+	21	Right cheek.
69	50	W	♀	+	43	Right cheek.
70	47	M	♀	+	37	Left cheek.
71	64	W	♂	+	3	Right cheek.
72	77	M	♀	+	65	Right cheek.
73	50	M	♀	+	43	Left cheek.
74	30	M	♀	+	16	Right cheek.
75	59	M	♂	+	29	Left cheek.
Total 49	2,570	M 32 S 2 W 14	♀ 34 ♂ 15	+ 40 — 0 ? 9	594	27 R., 21 L., L.(?), cheek.
Aver. 65%	52	M 67% S 4% W 30%	♀ 70% ♂ 30%	+81% ?18%	35	55% R.,43% L.,2% (?), cheek.

CANCER IN ORAL STRUCTURES OTHER THAN THE CHEEK

Series No.	Age	Civil State*	Sex†	Buyo Chewers‡		Site of Lesion
					Years	
2	65	W	♂	?	..	Tongue.
11	36	M	♂	?	..	Tongue, right side.
21	37	M	♂	+	..	Tongue, right side.
38	50	W	♂	+	..	Tongue, right side.
43	58	M	♂	+	20	Base of tongue.
44	63	W	♂	?	..	Left side of tongue.
45	54	W	♂	?	..	Base of tongue and right gum.
46	58	W	♂	+	..	Left side of tongue.
54	59	M	♀	+	..	Left edge of tongue.
55	58	W	♀	?	..	Left edge of tongue.
59	62	M	♂	?	..	Left side of tongue.
60	52	M	♀	+	2	Left side of tongue.
66	73	W	♀	—	..	Tongue, anterior portion.
3	65	W	♂	?	..	Right upper lip.
36	70	W	♂	?	..	Right upper lip.
56	65	M	♀	?	..	Right angle of mouth.
17	50	M	♀	?	..	Right tonsil and pillar.
47	73	M	♂	+	..	Left tonsil.
48	36	M	♂	+	..	Right tonsil and pillar.
37	47	W	♀	—	..	Base of uvula.
12	45	M	♀	+	..	Left jaw.
15	56	M	♀	+	..	Floor of mouth and tonsil.
29	45	M	♂	+	..	Gum, right side.
31	59	M	♂	+	..	Gum, superior, right side.
32	42	W	♀	?	..	Hard palate.
33	83	M	♂	?	..	Palate, left side.
Total 26	1,461	M 15 W 11	♀ 10 ♂ 16	+ 12 — 2 ? 12	22	
Aver. 35%	56	M 58% W 42%	♀ 38% ♂ 62%	+46% — 8% ? 46%	11	

ENTIRE SERIES

Total 75	4,031	M 48 S 2 W 25	♀ 44 ♂ 31	+ 52 — 2 ? 21	616
Aver.	54	M 64% S 3% W 33%	♀ 59% ♂ 41%	+69% — 3% ?28%	32

* In this column M means married, S single and W widowed.
† In this column ♂ means male and ♀ female.
‡ In this column + means yes and — no.

Philippine General Hospital.

Do You Know Your Age and Birthday?—As an additional evidence in favor of a rapid extension of birth registration and issuance of birth registration certificates to parents, a matter of both legal and medical importance, Stiles in Public Health Reports cites instances of popular ignorance and carelessness regarding birthdays and age. He says this applies not only to families of laborers and farmers, but to educated families, professional families and leading families much more frequently than one would suspect until one attempts to gather such information. In a study of about 5,000 schoolchildren, whites and negroes, Stiles found a startling ignorance and carelessness in regard to their ages. One university graduate signed a sworn statement that he was three years younger than the records showed him to be. He did this in good faith until proof was presented. Pupils may know their age at the last birthday, but when asked the year of their birth, even high school pupils and other children in astonishing numbers give erroneous answers, nor do their parents, especially the fathers, know the date of birth of their children, according to Stiles. Stiles does not believe that this is always an evidence of mental defectiveness, and cites the instance of the university graduate referred to, but that it is a strong argument in favor of accurate registration of births.

CAVERNOUS AND CYSTIC LYMPHANGIOMA OF THE CECUM

WITH REPORT OF A CASE *

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If Wegner's position relative to the congenital origin of lymphangioma is correct, it is not at all surprising that my review of the available literature has failed

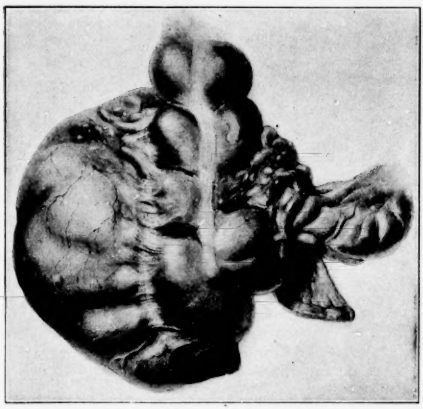

Fig. 1.—Anterior view of growth showing intimate relationship to cecum.

to show the record of a case of lymphangioma of the cecum or colon. With the present-day method of microscopic examination of all tumors removed at operation, surgeons have become appreciative of the importance of the method and the frequency of tumors heretofore regarded as of infrequent occurrence. It is not at all improbable that the future will show that lymphangioma of the large intestine is not so uncommon as the literature now indicates.

Wegner[1] classifies lymphangioma into (1) simple, (2) cystic, and (3) cavernous. In our specimen, Professor Welch found both cystic and cavernous forms of lymphangioma.

It is conceded by some writers that inflammatory changes may occur in these growths, and that the latter are detected in a large percentage of the cases before the patient attains the thirtieth year. In twenty-five of the fifty-two cases of lymphangioma of various parts of the body collected by Klemm,[2] the patient was under 25, while in thirty-eight cases the patient was under 40. Eleven were over 40 years of age.

Sudden elevation of temperature in cases of lymphangiomas is perhaps explained by inflammatory changes therein or by the intra-abdominal rupture of one or more of the cysts. Many of the cysts contain a cloudy substance. Kuttner[3] has discussed inflammation and pus formation occurring in lymphangioma.

It is somewhat difficult to explain the inflammatory changes which have so frequently been noted in these growths. If they are of congenital origin why should inflammatory changes occur therein?

Hagenbach[4] has reported a very interesting case of symmetrical lymphangioma of the neck which was noted at birth. Thiebierge and Gottheil[5] have each reported a case of lymphangiomas of the skin, while various authors have reported lymphangioma of the mesentery, small intestine, fallopian tubes, diaphragm, etc.

The following very interesting case of cystic and cavernous lymphangioma (Welch) of the cecum is of especial interest to the surgeon in view of the fact that the clinical picture simulated so closely that of an acute infection of the appendix. It is also of interest owing to the unusual location of the growth.

REPORT OF CASE

History.—W. B., a lad aged 15, was admitted to the medical service of the St. Louis City Hospital, June 28, 1913, and on the following day the patient was transferred to my surgical service. The patient stated that previous to onset of the present illness he had enjoyed good health. His father had died from consumption and his mother and one sister were afflicted with the disease at the present time. The present illness began four days before with sudden severe pain in the region of the appendix. The pain was followed by vomiting and fever. Examination showed a pulse of 116, a temperature of 102, and a leukocyte count of 16,000. Examination showed the patient's expression somewhat anxious, the abdomen slightly distended in the region of the appendix, and considerable tenderness and rigidity in the region of the appendix. There was no enlargement of the inguinal glands. The left side of the abdomen did not show rigidity. Rectal examination failed to show a mass. A distinct mass however, could be outlined about an inch above and an inch and a half

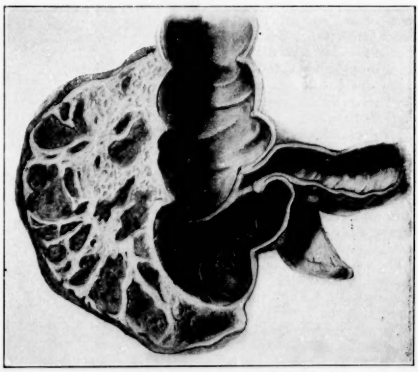

Fig. 2.—Longitudinal section of tumor and cecum.

anterior to the superior spine of the ilium. The patient's right limb was retracted. The patient presented all the symptoms and signs of an acute infection of the appendix with abscess formation.

Operation.—Immediate operation was performed. When the abdomen was opened through the usual incision along the border of the rectus muscle, a firm mass about the size of a man's fist was found situated to the outer side of and

* From the St. Louis City Hospital.
* Read at the Annual Meeting of the Western Surgical Association, Denver, Dec. 19, 1914.

1. Wegner: Arch. f. klin. Chir., 1877, xx.
2. Klemm: Virchows Arch. f. path. Anat., 1905, clxxxi, 541.
3. Kuttner: Beitr. z. klin. Chir., xviii.
4. Hagenbach: Deutsch. Ztschr. f. Chir., 1908, xciii, xciv, 477.
5. Gottheil: Jour. Cutan. Dis., 1909, p. 265.

intimately connected with the cecum. The appendix was free and did not show evidence of inflammation. The mesentery glands were not enlarged. The growth was almost entirely covered with peritoneum. The cecum did not show infiltration or inflammatory change. There was no evidence of tuberculosis.

The diagnosis of probable carcinoma of the cecum was made, and the cecum with the entire ascending colon and about 8 inches of the ileum were excised, and a side-to-side anastomosis by means of a Murphy button was made. The button was expelled on the seventh day, and the patient made an uninterrupted recovery. The patient was discharged, July 10. He is alive and in apparent perfect health at this time.

Dr. F. B. Hall made a roentgenogram of the colon and terminal loop of the ileum, showing the present condition of the anastomosis.

Fig. 3.—Transverse section of specimen.

PATHOLOGIC REPORT BY PROFESSOR WELCH

The specimen consists of a portion of the intestine with a tumor attached to the intestinal wall—hardened in alcohol. The intestine is the lower end of the ileum, 14 cm. in length, and the cecum 9 cm. in length, with the appendix. Partly enveloping the cecum and growing from its outer wall is a tumor measuring approximately 10 cm. in length (parallel with the axis of the gut), 6 cm. in thickness and 5 cm. in breadth. The tumor is, except over a part of the area, invested with peritoneum. The shape is irregularly oval with a somewhat irregular, nodular outer smooth surface.

Upon section the tumor presents a variegated appearance and is seen to be composed of a solid part, apparently connective and adipose tissue, and of many larger and smaller cysts and channels. The cysts vary from those just visible to the naked eye to those 2 cm. in diameter. From some the contents have escaped, others contain clear gelatinous material, and others blood either fresh or altered in color. The walls of the cysts in general are thin and smooth, but some show projections and suggest fusion of adjacent cavities.

The solid tissue is in places hemorrhagic, in other places grayish and firm, or with the appearance of fat.

The tumor is intimately incorporated with the outer wall of the cecum, from which it cannot be detached. It has not invaded the mucous membrane, which is intact.

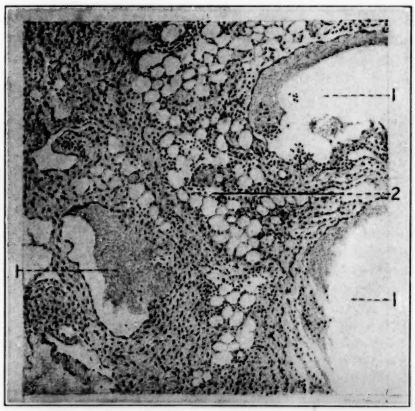

Fig. 4.—1, Lymph spaces, surrounded by edematous connective tissue (2), and infiltrating fat.

Microscopic Examination.—The cystic and canalicular spaces are seen to be dilated lymphatic vessels lined by endothelial cells. The contents vary, being sometimes, especially in the smaller spaces, homogeneous, and in others containing fibrin, leukocytes and red corpuscles in varying proportions. The leukocytes are mainly lymphocytes, and some of the lymph cavities are completely filled with these cells. Other cavities contain only or chiefly red corpuscles. The walls of the cysts and dilated vessels show bundles and detached strands of smooth muscle, often much hypertrophied.

The tissue between the cavernous spaces and channels is fibrillated connective tissue, or in places, adipose tissue. It is partly doubtless the preexisting tissue, but much of it is of new formation. In places it is delicately fibrillated and edematous; in other places more densely fibrous. A notable feature is the presence of smooth muscular cells, often hypertrophied not only in the walls of the lymphatic and blood vessels, but also scattered in the intervening tissue. Here are also fusiform and stellate fibroblasts.

Accumulations of lymphoid cells are present not only within the cysts and channels, but also in their walls and likewise in the intervening stroma. There are more or less extensive extravasations of blood, mostly fresh, both within the lymph spaces and in the tissues.

The cystic dilatations are in places so numerous as to give a honeycombed appearance to the sections; in other areas the tissue is more solid, but throughout the new growth such dilatations exist. Sections which include the junction of the tumor and the cecum show that similar, although narrower, dilatations of the lymph vessels occur in the submucous, muscular and subserous coats.

There is proliferation of the endothelium of the peritoneum, and considerable new growth of connective tissue and cellular infiltration in the serous membrane immediately adjacent to the tumor. The lymphatic vessels, frequently dilated, are filled with lymphocytes.

The same colloid or coagulated material present in the lumina of the lymph cysts can sometimes be recognized in the meshes of the tissue composing the solid part of the tumor. Fibrillated fibrin is also present in some places in the tissue.

Diagnosis.—Cystic cavernous lymphangioma.

Remarks.—To what extent, if any, there is an actual new formation of lymphatic vessels it is difficult to say. It is possible that all are preexisting or these with lymphatics formed in the new tissue. The fibrous tissue and muscular cells between the lymphatics are partly of new formation, and perhaps the tumor might be regarded as a fibromyolymphangioma, but it seems unnecessary to interpret the growth as other than composed essentially of dilated lymphatic vessels accompanied, as is usual in lymphangiomas, with some new formation of connective tissue and accumulation of lymphoid cells. New growth of smooth muscle is common in lymphangiomas, although in the present instance the development of the smooth muscle cells at a distance from the lymphatic vascular walls is a notable feature.

The most plausible explanation of this type of lymphangioma refers it to some error in congenital development.

There seems to be no active infectious inflammation, although chronic inflammatory changes are present. As regards the general interpretation of lymphangiomas as inflammatory in origin, that is another matter which relates to the general theories of this form of neoplasm. I am

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personally more inclined to the hypothesis of congenital origin for neoplasms of the type in this case.

There are extensive extravasations of blood, both fresh and old, but I do not regard these as essential features so far as the diagnosis of the primary condition is concerned.

Shortly after I received the foregoing report, Professor Welch wrote me as follows:

I have examined further sections from a piece which I cut from the tumor. There is nothing significant to add. The formation of masses of lymphatic tissue, growing in a polypoid form into the lumina of some of the cysts, was more noticeable, but I think that I spoke of such lymphatic tissue in my report to you. This speaks for new formation of lymphatic vessels, but is not conclusive. In fact, in many cases it is impossible to say whether the cysts are from preexisting lymphatics or from newly formed ones, and this you will find discussed in most of the articles on the subject.

The new sections show partial organization of the coagulated contents in some of the cystic dilatations. The hypertrophied muscle in the walls of the cysts and channels is conspicuous, as also are dilated blood vessels. Of course, there is a good deal of chronic inflammatory change, as I have already noted.

COMMENT

The case of lymphangioma herein reported is of especial interest to the abdominal surgeon because of its close proximity to the appendix and the infrequency of its occurrence in the colon. Hildebrand[6] has expressed the opinion that lymphangiomas are sometimes diagnosed as lipoma or fibroma.

The fact that a tumor of congenital origin may become so intimately connected to the cecum and be subjected to certain changes which manifest themselves by high leukocyte count, severe abdominal pain, vomiting, high temperature and, in fact, the usual clinical manifestations of an infected appendix, is worthy of careful consideration. Hertzler[7] and other writers have expressed the belief that these tumors are of inflammatory origin.

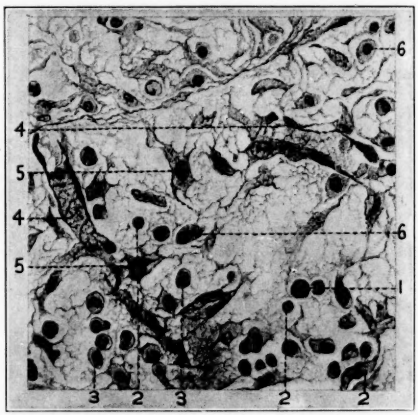

Fig. 5.—High power picture, showing character of connective tissue stroma. 1, Eosinophil cell; 2, lymphocytes; 3, plasma cells; 4, newly formed capillaries; 5, fibroblasts; 6, large mononuclears.

I am especially indebted to Dr. W. W. Grant for his interest in the case; also to Professor Opie and Drs. Thomas and Tiedemann of Washington University, as well as to Dr. Hertzler of Kansas City, for valuable assistance. My indebtedness to Professor Welch of Johns Hopkins is evidenced by his pathologic report.

4826 Delmar Boulevard.

6. Hildebrand: Koenigs Lehrbuch der Chirurgie, iv, Allgem. Chirurgie, p. 380.
7. Hertzler: Personal letter.

Taking Advantage of a Fellow.—"Would you enjoy your dinner if you saw bedbugs, fleas, roaches or spiders crawling all over the foodstuffs? Yet this form of vermin is comparatively clean in comparison with flies. Prepare now to swat the first fly you see in the coming spring."—*Wisconsin State Board of Health Bulletin.*

THE INTRAVENOUS USE OF COLLOIDAL (GELATIN) SOLUTIONS IN SHOCK

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SAN FRANCISCO

I. INTRODUCTION

Periodically in medical and surgical practice we are brought face to face with a series of signs and symptoms that are in essence the expression of an abnormally low blood pressure, and which, when sufficiently marked, serve to kill a patient.

Not alone is the list of pathologic states in which a low blood pressure is observed very long, but the explanations given by different authors as to why the low blood pressure exists in any given state are very different. From a therapeutic point of view, however, this ground is held in common by all authors: They are agreed that a saving of life is intimately associated with, or rendered possible only by our success in raising the blood pressure, and keeping it up until such time as the patient himself succeeds in overcoming the conditions which are responsible for the low blood pressure.

Simple as it would seem to attain this end, its accomplishment practically is still a matter of debate. The problem involved is perhaps best presented if we consider the effects of simple hemorrhage. If by accident or otherwise, one of the larger vessels in man or a laboratory animal is opened, we observe following each other in rapid succession and in the course of a very few minutes all those alarming signs which reach their climax in death.

When now we try to say why this occurs, it is quickly brought home to us that the most serious mischief done by the hemorrhage does not reside in a great loss of red blood corpuscles or in a loss of certain of the chemical constituents found in the blood, say the hemoglobin or certain salts, but in a diminution in the volume of the circulating blood. The proof for such a conclusion is easily brought, for to protect or save an animal from the effects of hemorrhage it is not necessary to transfuse blood; but transfusion with water containing various salts (so-called "physiologic salt solution," "Ringer solution" or "Locke solution") may do. In fact, the dangers incident to transfusion of whole blood have made medical men in practice depend more and more on salt solutions of various kinds and less on the transfusion of blood itself.

But even though salt solutions of various kinds work excellently, they do this for only a limited time. In other words, it is too often noted that while a physiologic salt solution or a Ringer solution produces immediately brilliant results, this effect wears off in an hour or two, so that the individual who has been roused

from the threatening effects of a great hemorrhage begins to sink again, and even though we repeat our injection, the improvement in patient or animal is again only temporary.

When we ask why this occurs we have no difficulty in finding the answer. The injected salt solution does not remain in the blood vessels. The evidence for this is perfectly clear. Not only does the blood pressure, which we have brought up after the hemorrhage, slowly fall again, but the fluid that has been injected appears as urine, or it is taken up by the tissues (an edema develops), or both. Clearly, if the water could be kept in the blood vessels, the temporary effects following the injection of salt solutions could be made more permanent.

This brings us to the heart of the problem. Why is a salt solution not retained in the blood vessels of an animal, or, put in another way, why does a circulating liquid like blood remain in the blood vessels? Why does blood not suffer the same fate as a salt solution and be lost from an animal as urine or be absorbed into the animal's tissues?

As is self evident, a correct answer to this question is not only of general biologic interest, but also constitutes the basis on which must be built the principles underlying the whole problem of perfusion as practiced for any cause whatsoever in a clinical case.

The blood (or the lymph) remains in the blood vessels because it contains no "free" water—all the water in it is held (as hydration water) in combination with the colloids present here. A salt solution rapidly disappears from the vascular system for the reverse reason, in other words, because this does contain "free" water.

The detailed experimental proof for the correctness of this reasoning was brought some time ago.[1] I review here a few experiments which illustrate our contentions, after which I shall discuss the results which have been obtained in human cases in utilizing the principles learned on animals.

II. EXPERIMENTAL DATA

1. If we take a rabbit quietly from its cage, tie it comfortably into an animal holder and catheterize it with a small soft rubber catheter, we get a urinary secretion that is represented graphically in the lowermost curve (*a*) of Chart 1. This, as all the other curves, is obtained by plotting time along the horizontal (in fifteen-minute intervals), and the number of cubic centimeters of urine secreted in each of these intervals on the vertical.

Let us now see what is the effect on this secretion of injecting intravenously at a uniform rate (10 c.c. every five minutes) an amount of differently concentrated sodium chlorid solutions (about 125 c.c.) which equals in volume the circulating blood in the animal. The result is indicated in the remaining curves.

In Curve *b* is shown the effect of injecting a one-eighth molecular (0.729 per cent.) sodium chlorid solution. As is readily apparent, the injection of a weak salt solution is quickly followed by an increase in the urinary output.

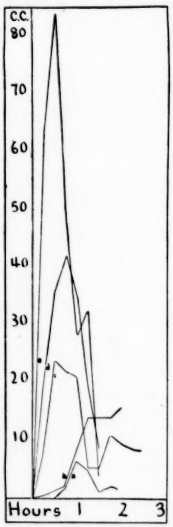

Chart 1.—Urinary secretion in a rabbit; *a*, normal; *b*, *c*, *d*, *e*, urinary secretion after injection of the same volume (125 c.c.) at the same rate of progressively more concentrated sodium chlorid solutions.

Curve *c* shows the effect of injecting the same volume of a salt solution that is more nearly "isosmotic" or "isotonic" with the tissue fluids of the rabbit—namely, a 0.92 per cent. sodium chlorid solution. We have no difficulty in seeing that the urinary output is under such circumstances still further increased. Also we notice that the effect of this solution on the secretion occurs earlier, even though the quantity of solution injected and the rate of injection are the same as in the previously described experiment.

Curves *d* and *e* show the effect, respectively, of injecting one-fourth molecular (1.459 per cent.) and one-half molecular (2.909 per cent.) sodium chlorid solutions intravenously. Evidently, with the injection of a constant volume of water at a constant rate, the loss of water from the body occurs the more rapidly, the higher the concentration of salt injected along with the water. Little or none of the water that is injected is retained, and if enough salt is injected with the water, even more water is lost by the animal than is injected.

Let us turn now to the interpretation of these simple experimental facts.

The whole animal, that is, all his tissues, including the blood and lymph, is composed of a system of colloids which under normal circumstances are saturated with water.[2] This system of colloids cannot take up any water or liberate any, except as it first suffers changes of a chemical or physicochemical character that either increase or decrease the capacity of these colloids for water. If the system of colloids composing the body is saturated with water, then clearly it cannot take up any more of this substance, and so if we inject "free" water intravenously in the form of a "physiologic" sodium chlorid solution, this cannot be retained in the body. It escapes as urine. If, instead of doing this in an experimental animal, we have employed this procedure in a patient suffering from hemorrhage, the result and the interpretation of the result are just the same. The good effects on the patient resulting from filling up his blood vessels with salt solution can be only temporary, for the water is "free" and escapes shortly after the injection as urine.

But why does a strong salt solution make the water come out as urine sooner than a weaker solution, and why in a greater amount?

It has generally been held that this is because the salt "stimulates" the kidney cells in some mysterious way. Aside from the fact that this means nothing, the explanation is really simpler. The salt decreases the capacity of the body colloids (the protein colloids) for holding water, and this the more, the higher the concentration of the salt. The higher the concentration of the salt in our solution, the higher must this therefore

1. Hogan, James J., and Fischer, Martin H.: On the Theory and Practice of Perfusion, Kolloidchem. Beihefte, 1912, iii, 385.

2. Fischer, Martin H.: Physiology of Alimentation, New York, John Wiley and Sons, 1907, pp. 186 and 267; Am. Jour. Physiol., 1907, xx, 330; Arch. f. d. ges. Physiol. (Pflüger's), 1908, cxxv, 99; Kolloidchemische Beihefte, 1910, i, 93; ibid., 1911, ii, 304. A running account and further references to the literature may be found in his Oedema and Nephritis, Ed. 2, New York, John Wiley and Sons, 1915.

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be in the blood, and secondarily (after diffusion) in all the tissues of the body. In injecting a strong salt solution we therefore not only supply free water as before, but by increasing the salt concentration in the blood and tissues, we make the colloids here give up water. This "free" water is then added to that already "free" in our injection mixture, and so the urinary output is increased *pari passu* with every increase in the concentration of the salt in the injected fluid.

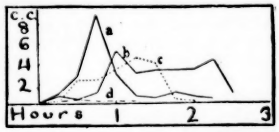

Chart 2.—Urinary output in rabbits when 125 c.c. of water are injected in form of blood serum.

2. We can at once test the soundness of our reasoning by substituting for the plain salt solutions one in which the solvent (water) is not free, but combined with a colloid. The natural fluid that has these characteristics is of course, if our reasoning is correct, the blood, and so we should expect that the injection of no amount of blood would yield any increase in urinary output. That it does not is a familiar fact in physiology since the experiments of E. Ponfick[3] and R. Magnus,[4] only the interpretation of this observation has been lacking.

Chart 2 shows how the injection of a solution in which the water is combined with a colloid does not yield any increase in urinary secretion (it remains in the blood vessels). In these experiments we did not use whole blood, but sterile blood serum. In spite of the fact that the same amount is injected as in the experiments with salt solution, the curves showing the urinary output are identical with those which are obtained from normal animals which have simply been comfortably tied into an animal holder.

3. It might now be argued that blood has something specific about it that makes it remain in the blood vessels, and that it does this not simply because the water in it is held in combination with the blood colloids. This criticism is met in Chart 3, which shows the results of experiments in which water is again injected intravenously, only this time in combination with a colloid foreign to the blood, namely, gelatin. As the two curves show, a 1.5 to 2.5 per cent. gelatin solution, when injected intravenously, remains in the blood vessels and does not yield any increased urinary output.

4. If the foregoing experimental facts are correctly interpreted, it is of course to be expected that we can at will make an animal retain water in its blood vessels or give this up, depending on whether the water so introduced is given in combination with a colloid or "free." This may be proved in one and the same animal. The results of injecting water in combination with a colloid as blood serum or a gelatin solution, and "free" water as in a salt solution, are shown in Charts 4 and 5. While no increase in urinary output is observable in the first period of these experiments in which blood serum or gelatin is injected intravenously, the urinary secretion rises as soon as a salt solution is substituted for the serum. The curves are clearly the syntheses of the results obtained before in separate animals when we injected colloidal solutions or salt solutions alone.

3. Ponfick, E.: Virchows Arch. f. path. Anat., 1875, lxii, 277.
4. Magnus, R.: Arch. f. exper. Path. u. Pharmakol., 1901, xlv, 210.

III. CRITICAL REMARKS

To those who are disinclined to accept the teaching that the living animal represents simply a series of colloidal phases that are saturated with water, and that secretion becomes possible (in the main) only as some of this water is freed (as by increasing the salt concentration in the protoplasm of the animals), or "free" water is injected from without, these experiments, in which we take a secretion of urine or its absence as evidence that an injected fluid has remained in the blood vessels or not, may not be entirely convincing. We must meet their objections.

Mere examination of the animals while they are being injected with a colloidal solution or with a salt solution indicates that the fluid remains in the blood vessels in the former case and escapes from these in the latter. Inspection of the more superficial blood vessels (veins and arteries of the skin and ears, the carotids and the femorals) shows that, when a colloidal solution is injected, these become progressively fuller and remain so; as the vessels become more and more filled, the amplitude of the pulse waves becomes smaller and this effect persists. Even when we inject such a non-poisonous fluid as blood serum we can only inject a limited volume before we notice that the respiration of the animal is becoming embarrassed, and if we persist, the animal dies from mere overfilling of the blood vessels, and the mechanical hindrance that this offers to the maintenance of a circulation of the blood.

Intravenous injection of a salt solution is not followed by such consequences. Here the filling of the blood vessels is not so apparent, and the effect is not lasting. The respiration does not become embarrassed, and if we have previously overfilled the blood vessels with a colloidal solution and so induced a dyspnea, this is likely to improve if a strong salt solution is injected.

Further, if we have produced a (presumably) fatal hemorrhage and then saved our animal by the injection of blood serum, we can kill it subsequently by giving strong salt solutions which again decrease the volume of blood in the blood vessels.

That only the colloidal solution remains in the blood vessels is further brought home to us when we examine the injected animal at necropsy. In an animal that has been injected with a salt solution, especially if it has been a strong salt solution, the heart is normally distended with blood, or may appear underfilled, as do all the larger blood vessels. If the organs (liver, kidney, etc.) are cut across, they bleed a little or may be quite dry. If, on the other hand, a colloidal solution has been injected, the heart and large vessels are distended with blood, and when one of the parenchymatous organs is cut across, the blood fairly wells out of it.

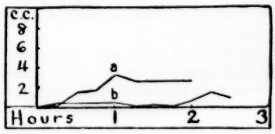

Chart 3.—Urinary output in rabbits when 125 c.c. of water are injected in colloidal combination with gelatin.

We know that the colloidal solution remains in the blood vessels from yet other facts. It simply cannot get out. Its loss from the blood vessels is entirely analogous to the absorption of such fluids from any of the serous cavities or the gastro-intestinal tract.

Water injected into the peritoneal cavity in combination with a colloid (blood, lymph, ascitic fluid, gelatin solution, agar-agar, native egg white, etc.) cannot be absorbed until it has been separated from the colloid, or the colloid has been removed (digested). The same is true for the absorption of the water out of these solutions when introduced into any other serous cavity or into the lumen of the intestine.[5]

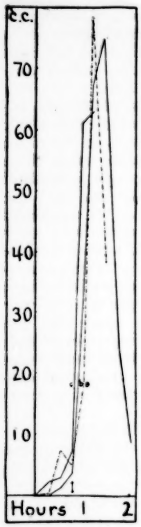

Chart 4.—Urinary secretion when salt solution follows injection of blood serum.

Finally—what will seem most convincing to many physiologists and clinicians—direct blood pressure measurements show that salt solutions do not remain in the blood, while water in combination with a hydrophilic colloid does. As is known to everyone, the rise in blood pressure which follows the intravenous injection of a 0.9 per cent. sodium chlorid solution into a normal rabbit is only temporary. In a few minutes to half an hour, the pressure has dropped back to normal. Accompanying it we have an increased urinary output. But if the same amount, say the equivalent of the calculated volume of blood in the animal, is injected in the form of blood serum or gelatin solution, the rise in arterial blood pressure (amounting to from 10 to 25 mm. of mercury) remains for hours; and in this case no increase in urinary output is noted. Especially marked are these findings if we first induce a state of low blood pressure in our animals by hemorrhage. While salt solutions give a temporary rise in blood pressure (and improvement in the general symptoms consequent on the hemorrhage), we obtain a permanent rise only if we inject a (hydrophilic) colloidal solution.

IV. PRINCIPLES OF PERFUSION IN HUMAN CASES

The foregoing experiments were made in order to formulate more clearly the principles that must guide us in combating the various pathologic conditions encountered clinically which are characterized by an abnormally low blood pressure of such grade that it in itself threatens life.

Such a low blood pressure may result from any one or any combination of the following causes: (1) a decrease in the force or the number of the heart beats; (2) a diminution in the volume of the circulating blood; (3) an increase in the capacity of the blood vessels to hold blood. Or to illustrate this in ordinary clinical terms, a low blood pressure may result from a weakened heart muscle (myocarditis); from a hemorrhage, or a loss of the watery constituents of the circulating blood (oligemia); from a vasodilatation due either to a loss of tone in the blood vessel walls themselves or to impairment of the nervous (so-called vasomotor exhaustion) or chemical mechanisms (loss of the active principle of the suprarenal bodies from the blood) which are in part or wholly responsible for the maintenance of this tone.

In this paper I shall disregard the question of failure of the heart itself as responsible for a pathologically low blood pressure, and discuss merely the principles involved in our ordinary therapeutic attempts at restoring a low blood pressure to normal by introducing fluids intravenously.

It is clear from what was said above that only a proper colloidal solution can be injected intravenously with the hope that it will remain in the blood vessels and so maintain any rise in blood pressure gained by such means over any considerable period of time. But what colloidal solution may we or is it best to inject?

After what has been said it must be self evident that the best transfusion fluid is whole blood. But the obvious difficulties and dangers attendant on the carrying out of a man-to-man blood transfusion limits its usefulness. The liquid of next choice for perfusion is that which most nearly approaches blood, namely, blood serum. Human blood serum is, however, difficult to obtain. All the possibilities of obtaining a human colloidal solution that will stay in the blood vessels resides in the use of hydrocele fluid and of the ascitic accumulations from patients with heart disease. Such fluids can be drawn when opportunity offers into sterile containers and the serum separated from the fibrin clot by the methods employed in collecting horse serum. The use of the serum from human milk is also to be counted in here. Certain dangers are, of course, attendant on the use of any of this human material, but on these not too much emphasis is to be laid, for perfusion is not at present employed for patients who are not desperately ill.

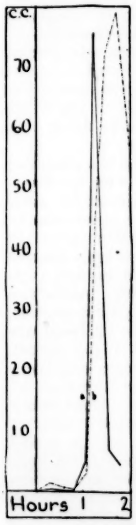

Chart 5.—Urinary secretion when salt solution follows injection of gelatin.

It was to meet these various objections that a colloidal solution suitable for intravenous injection in clinical cases and obtainable from other than human sources was sought. The materials available for such use are limited, but as our previous experiments on animals and the clinical abstracts given below would tend to show, properly prepared gelatin solutions may be used intravenously without danger.

Preparation of Gelatin Solution for Intravenous Use

Twenty-five gm. of the purest gelatin,[6] 1.5 gm. of sodium chlorid and 100 c.c. of distilled water are placed in a flask and boiled for fifteen minutes. The resulting solution is filtered through heavy paper in a hot funnel and then autoclaved for an hour at 124 C. (255.2 F.). It is then chilled in an ice-box. The gelatin has the proper colloidal qualifi-

5. Fischer, Martin H.: Kolloidchemische Beihefte, 1911, ii, 304; Lancet-Clinic, June 22 and 29, 1912.

6. The gelatin must be fresh and of high quality. Ordinary and old gelatin not only does not gel properly, but is often so rich in protein decomposition products as to be dangerous for intravenous use. I have found the Non Plus Ultra brand of the Deutsche Gelatine Fabriken, and the "Highest Quality" of the Heidelberger Gelatine Fabrik (Stoess & Co., Heidelberg) to do very well.

cations if under these circumstances it solidifies. In this form the gelatin is kept until needed. In order to prepare the transfusion mixture, the flask of gelatin is warmed until it melts, when it is added to 1,000 c.c. 0.9 per cent. sodium chlorid to which have been added 2 gm. of sodium carbonate crystals (Na_2CO_3 10 H_2O) all warmed to body temperature.

The instructions as here given must be carefully followed, otherwise trouble will be encountered from the fact that, as ordinarily done, the heating necessary to sterilize properly the gelatin decomposes it and so destroys the very properties for which it is used. When heated in the presence of a sufficient concentration of salt, this decomposition is practically avoided.

The results that have been obtained by the use of such gelatin solutions intravenously are best illustrated by a few clinical histories. I am indebted to a number of my colleagues for permission to see their patients, and wish here to express my acknowledgments. Most of all I am indebted to Dr. B. F. Alden, who was the first to try the gelatin solutions intravenously in a series of injury cases in which death seemed the only prospect.

CASE 1. (Dr. B. F. Alden, San Francisco).—A. F., aged 39, Italian laborer, had always been in good health. March 3, 1913, he entered the French Hospital, the victim of a severe accident which had occurred the day before. A tree limb had fallen across his leg from a great height, crushing the upper end of the right tibia, and the head and lower third of the shaft of the femur. All structures beneath the skin, with the exception of the semitendinosus tendon had been completely severed. There existed also a compound comminuted fracture of the right tibia, fibula and ankle bones, which, however, did not bleed as all vascular communication had been severed above. The left tibia and fibula were fractured. Hemorrhage had been excessive, as practically no attempt had been made to control it. The man had been brought from the country and did not get into the hospital until twenty-four hours after the injury. The patient was in a state of profound shock. He was almost exsanguinated and showed a small, rapid, soft radial pulse, with cold extremities, excessive thirst, and shallow and rapid respiration. Blood was oozing from the lacerated wound about the knee. Strychnin, normal salt solution subcutaneously, gelatin subcutaneously, and the usual hemostatic measures were all used without improving the general state of the patient. Under ½ grain tropacocain anesthesia, administered intraspinally, the integument—which, with a single tendon alone united the crushed leg to the patient—was severed. The clotted blood and crushed bone were removed, and the large vessels in the stump were rapidly ligated; the wound was dressed and the patient rushed to bed, where his head was placed low and surface heat was applied. The pulse could now no longer be obtained at the wrist and, as death seemed imminent, it was felt that an intravenous injection of a gelatin solution was justified. Five hundred c.c. were given. As there was no radial pulse at the beginning of the injection, an accurate blood pressure reading could not be made. The needle of a Tycos instrument oscillated at 90 mm. While the injection was being made, the radial pulse gradually returned, and an hour later the blood pressure measured 125 mm. During the same time the pulse rate dropped from 130 to 88. The pressure was maintained, rising slightly from day to day, until on the tenth day after the infusion it measured 145, while at the same time the pulse gradually dropped to 78. The pressure now gradually declined to 125 mm. and the pulse to 72. The patient made an uneventful recovery.

CASE 2. (Dr. D. N. Richards, San Francisco).—Mrs. E. S. R. entered St. Francis Hospital, July 2, 1913, at 5:30 p. m., at full term and in labor. Regular pains continued until 4:15 a. m., when ether was given and she was delivered of a female child. The placenta was expelled at 5:10. This was followed by profuse bleeding, which continued until the patient was practically exsanguinated. At 6 a. m. the radial pulse could scarcely be felt. The pulse was 140, the blood pressure (verified by Drs. Richards and Fraser) 58. As the patient's condition was considered alarming, an intravenous injection of 750 c.c. of gelatin solution was given. The blood pressure rose to 118 mm. within an hour, the pulse fell to 100, and the patient's general condition improved greatly. For the following four days the pressure varied between 105 and 110 mm., the pulse between 85 and 100. The patient made a good recovery, leaving the hospital July 17.

CASE 3. (Dr. B. F. Alden, San Francisco).—J. P. G., aged 46, Frenchman, was operated on by an associate, Feb. 7, 1913, for a ruptured appendix. A suppurative peritonitis with two fecal fistulas, one into the cecum, the other into a loop of the ileum, resulted. April 15, the openings in the intestine were repaired with Connell's interrupted sutures of silk covered by continuous Lembert catgut sutures. No excessive bleeding was noticed at the time of the operation, but one of the Connell sutures must have lacerated a large vessel, from which an active hemorrhage into the lumen of the intestine resulted. April 16, a lowered blood pressure with symptoms indicative of hemorrhage were observed. The outer wound was opened and the intestinal site explored, but as no serious bleeding was found, the intestine was not disturbed. The wound was repacked with gauze. On the morning of April 18, a large bowel movement of coagulated blood was observed. In the meantime the patient had declined steadily. Ten c.c. of horse serum were injected subcutaneously. A second blood stool containing a large amount of fresher blood occurred, when another 10 c.c. of horse serum and 300 c.c. of physiologic salt solution were given. The patient continued to decline, exhibiting all the alarming symptoms of active hemorrhage. At 3:30 p. m., April 18, the patient was reported dying. He was pulseless at the wrist. Oscillations in a Tycos instrument were observed at 80 mm. An immediate intravenous injection of 500 c.c. of gelatin solution was ordered. Half an hour later the patient's pulse had dropped from 156 beats to 138 and had gained in volume, strength and regularity. The blood pressure rose to 110 mm., and by the following morning it was 140 mm. This pressure persisted, while the pulse rate within three days gradually fell to 74. An uninterrupted convalescence followed, and at the present time this patient is well.

CASE 4. (Drs. W. B. Coffey and C. A. Walker, San Francisco).— Mr. B. entered St. Francis Hospital, July 26, 1913, having been ill for four days. The patient showed marked evidences of general intoxication. Examination revealed tenderness in the region of the appendix. An immediate operation was performed which revealed a ruptured appendix with marked circumscribed peritonitis. The patient showed marked shock following the operation. A 0.9 per cent. sodium chlorid solution was dripped into the rectum throughout the day following the operation. The patient did not rally. The pulse became progressively weaker and rose to 130, while the blood pressure fell until at 9:30 p. m. it measured 86 mm. As death seemed the only outcome, gelatin solution was given intravenously. This was started at 9:50, the blood pressure at this time measuring 85 mm., the pulse 128. The following records show the rise in blood pressure during the injection:

After 150 c.c. it was 96.
After 250 c.c. it was 110.
After 400 c.c. it was 128.
After 500 c.c. it was 132.

As this pressure was deemed sufficiently high, the injection was stopped. The patient's general condition improved at once, the radial pulse filling out and the rate dropping to 90. The following morning the blood pressure was 119, the pulse 90. That afternoon the pressure rose to 128, while the pulse dropped to 85. The pressure remained, while the pulse gradually returned to normal. The patient made an uninterrupted recovery.

CASE 5. (Dr. B. F. Alden, San Francisco).—M. C., aged 36, a native of France, because of an empyema of the left thorax

following a lobar pneumonia, was transferred to the surgical service from the medical side, May 20, 1913, for a thoracotomy. Before he was brought to the operating room the patient showed the weak, thready pulse, rapid respiration, extreme pallor, drawn face, and cold and clammy extremities, ears and neck of profound shock. When placed on the operating table, the patient seemed *in extremis*, and was practically pulseless. Because of this, no proper blood pressure reading could be made. The anesthetist advised against the use of an anesthetic. As it was agreed that the patient would die, 500 c.c. of the gelatin solution were injected into the median basilic vein. The incision was made without anesthetic, as the patient was unconscious. Within ten minutes after the beginning of the perfusion, a perceptible radial pulse was noted, and this gradually improved in quality. A section of the eighth rib was now removed, and drainage of the pleural cavity effected. The patient recovered consciousness while on the operating table, and the blood pressure rose to 118 mm. It continued to mount until it reached 154 the following day. At the same time the pulse rate fell from 135 to 106. Two days later the pressure sank to 106, while the pulse mounted to 136. As the drainage was found to be inefficient, by reason of adhesions in the pleura, the patient was reoperated on under nitrous oxid and oxygen anesthesia. This was done without difficulty. The pressure then again rose to 126 mm. and remained there, while the pulse fell back to 100. At the present writing this patient has so far recovered as to be up and about.

CASE 6. (Dr. B. F. Alden, San Francisco).—M. B., aged 54, a Frenchman, for some time preceding his operation had been unable to take food owing to an almost complete stenosis of the pylorus secondary to a carcinoma. He refused operation until May 13, 1913, when his condition had grown so grave from starvation that operative interference hardly seemed advisable. The blood pressure was less than 95 mm. As a prophylactic measure he was given 500 c.c. of the gelatin solution intravenously. The pressure rose rapidly to 115 mm., and it was decided to attempt an exploratory incision. An inoperable pyloric carcinoma being found, a posterior gastrojejunostomy was performed. Throughout the operation and afterward the patient's pulse and pressure continued good. After the operation he improved rapidly, vomiting but once several days after. In the afternoon after his operation the blood pressure was 120, on the next day 136 and for four days more 150 to 160, after which it fell gradually to 128, where it remained. The pulse rate fell in this same period from 95 to 86, and then more gradually to 76. At present he is walking about in better health than for months past. This improvement is due, of course, to his ability to take food, but the surgeons concerned felt that the necessary operation was made possible only because the patient was first perfused with gelatin.

It can, of course, be foreseen that what may actually be accomplished through gelatin transfusion in any case of low blood pressure depends on the intensity, persistence and nature of the factors responsible for it. Viewed in this light, it is not remarkable that our experience thus far has seemed to indicate that cases of shock consequent on simple hemorrhage are most easily relievable. Even those of our patients who showed extreme degrees of anemia rallied. Shock consequent on injury or a surgical operation in the ordinary "clean" case seems to be controllable almost as easily. Least hopeful are the septic cases in which the low blood pressure is in large measure dependent on a heart suffering from the general intoxication. This is illustrated in Case 7.

CASE 7. (Drs. W. B. Coffey and C. A. Walker, San Francisco). Mr. C., aged 32, a laborer, was brought into St. Francis Hospital at 1 p. m., July 25, 1913, with the diagnosis of a ruptured typhoid ulcer. He had had typhoid since July 1. It was felt that the patient could not live through an operation. The blood pressure was 65 mm., and as it was felt that the patient would certainly die, an intravenous infusion of gelatin solution was started at 2 p. m. After 300 c.c. had been injected, the pressure rose to 90 mm., after 400 c.c. to 96 mm., and after 500 to 99 mm. At this point the abdomen was opened under local anesthesia and found filled with fluid, fecal in character. The opening in the small intestine was quickly located and closed. The gelatin perfusion was continued during the operation, the blood pressure rising steadily even during operation as follows: after 600 c.c. had been injected it was 106 mm., after 700 it was 108 mm., after 850 it was 108 mm. This higher pressure continued until 6:10 p. m., when he showed signs of a rapidly falling pressure and then died.

Besides this patient, I have seen two others with toxemic shock who died. One was a woman suffering from a hemolytic streptococcus infection of the blood stream after a miscarriage; the other, an ileus in the course of a peritonitis secondary to a ruptured appendix. In the former we raised the blood pressure from 75 mm. to 118 mm., where it remained for two days, when the patient died. In the second the pressure was raised from 58 mm. to 124 mm. This patient also died.

As this paper deals only with the use of colloidal perfusion mixtures, I purpose discussing in a subsequent paper some additional methods at present available in the treatment of toxemic shock.

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THE INFLUENCE OF CHANGES IN THE CHEMICAL ENVIRONMENT ON THE LIFE AND GROWTH OF TISSUES *

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In addition to the method which, with a view of analyzing the effect of experimental variations in the physical and chemical environment on the life and growth of tissues, I published in 1897, and which permits study of the life and growth of tissues in the test-tube, outside the body,[1] and with a later modification also inside the body — the latter serving as a living thermostat[2] — there exists another method of studying the influence of apparently slight chemical changes on life and growth of tissues, namely, that of comparing the growth of tissues after transplantation into the same individual in which it originated (autotransplantation) and after transplantation into another individual of the same species (homoiotransplantation) and after transplantation into other species (heterotransplantation). In 1902[3] and again in 1907[4] I showed that tumors which die after homoiotransplantation live usually after autotransplantation. It may happen that occasionally in such a tumor a small peripheral part may remain alive even after homoiotransplantation, but in the same tumor after autotransplantation the whole tumor remains alive. I drew on the basis of these experiments at that time the conclusion that the chemical constitution of body fluids differs in in different individuals of the same species. It was of interest to make a systematic study of the influence of these chemical differences on the life and growth of normal tissues. While a few observations recorded in the literature suggested that autotransplantation of tissues is sometimes more successful

* From the Department of Pathology, Barnard Free Skin and Cancer Hospital.

1. Loeb, Leo.: Ueber die Entwicklung von Bindegewebe, etc., und eine Methode, isolierte Gewebeteile zu züchten, Chicago, 1897.
2. Loeb, Leo.: Ueber das Wachstum des Epithels, Arch. f. Entwicklungsmechanik, 1902, xiii, 489.
3. Loeb, Leo.: Jour Med. Research, 1902, viii, 44.
4. Loeb, Leo.: Jour. Med. Research, 1907, xvii, 299.

than homoiotransplantation, this problem had hitherto mainly been considered from the practical point of view of the surgeon without regard to its great theoretical significance as a study of the effect of a difference of chemical environment on tissue life and growth.

Without going into a detailed statement of our results, I wish here to report briefly some of our general conclusions which are based on our work and that of our collaborators, on the surface and subcutaneous transplantation of various kinds of skin, and on the subcutaneous transplantation of kidney, thyroid, uterus and testicle. While part of this work has been reported within the last six years, other publications will follow in the near future.

1. In the case of the majority of tumors and normal organs, some of the transplanted tissue remains alive and may grow after autotransplantation, while after homoiotransplantation it perishes. In the case of certain tumors, and perhaps in rare instances in the case of normal tissues, however, even after homoiotransplantation, transplanted cells may remain alive and in some cases grow.

2. In some of those tissues which after homoiotransplantation remain for some time alive, metabolic changes which represent a deviation from the normal can be shown to take place, and it may be assumed that those changes usually occur, even in cases in which at present we cannot demonstrate their existence. Thus, after surface homoiotransplantation of pigmented skin, an interference with the normal process of pigmentation can be observed,[5] after homoiotransplantation of thyroid the production of colloid is deficient.[6]

3. Different tissues show a somewhat different degree of resistance after homoiotransplantation (and also after autotransplantation). Gland tissue of the uterus, for instance, shows more resistance after homoiotransplantation than kidney tissue, and probably also more than unstriated muscle of the uterus. There exist also within certain limits differences in individual experiments, depending perhaps on a better mutual adaptation of the organs of one individual to the body fluids of another individual of the same species.

4. After a first period, usually lasting somewhat less than one week, in which no marked difference exists in the behavior of the autotransplanted and homoiotransplanted pieces, a gradual destruction of the latter sets in. In some cases, metabolic tissue changes taking place after homoiotransplantation may perhaps be of a sufficiently serious character to lead to a direct destruction of the transplanted pieces or prevent their recuperation from the injurious conditions caused by the process of transplantation. This may be sometimes so, perhaps, in the case of unstriated muscle of the uterus, or after homoiotransplantation of certain tumors. Furthermore, after transplantation into other species, the toxicity of the body fluids may injure the transplanted tissue to such an extent that death results. (In vitro the blood plasma of a different species seems to be relatively innocuous. We have, however, to consider that here, even if a toxic substance should be present in the body fluid, the quantity of it coming in contact with the transplanted tissue would be extremely small, while in the living body the blood stream would constantly carry new toxic substance to the transplanted tissue. We know that minute quantities of a toxic substance may exert a stimulating effect, where somewhat larger quantities paralyze and destroy.)

While the directly destructive effect of body fluids needs further investigation, there can be no doubt that a typical and frequent mode of destruction of homoiotransplanted (and sometimes of autotransplanted) tissues is of a different character. While the vitality of the tissues has not been essentially impaired after homoiotransplantation, and they may even grow, and the metabolic changes they underwent in the different chemical environment did not therefore markedly interfere with their power to live or even to propagate, these metabolic changes lead to a new condition in the host tissue, which secondarily brings about a destruction of the transplanted piece, namely, these metabolic changes cause (*a*) an increased activity on the part of small mononuclear cells (probably lymphocytes) and (*b*) a destructive activity on the part of the connective tissue of the host.

5. The mononuclear cells collect around the transplanted tissue, penetrate into it and destroy its cells. While in the autotransplanted tissue the immigrating fibroblasts remain in an active young state—if one wishes to use the latter designation—in the homoiotransplanted tissue the fibroblasts very soon form dense fibrous material which separates the transplanted parenchyma into small islands, compresses them and leads thus to their destruction. There is possibly also present a greater ingrowth of fibroblasts in the case of the homoiotransplanted tissue. We may conclude, therefore, that the metabolic changes taking place in tissues after homoiotransplantation stimulate the activity of the lymphocytes and cause the altered function of the fibroblasts which now produce fibrous tissue in large quantity. This destructive activity of lymphocytes and connective tissue in homoiotransplanted tissue—and under certain conditions also in other cases—we observed after subcutaneous transplantation of skin;[7] after surface transplantation of skin;[8] after transplantation of kidney, where the connective tissue changes are also very marked;[9] of thyroid,[10] and of uterus.[11]

6. The activity of lymphocytes and of connective tissue is to some extent independent of each other; while in many cases the two act together, in some cases the one prevails, in other cases the other.

7. In the case of certain organs as, for instance, the kidney, also pieces transplanted into the subcutaneous tissue of the own animal are attacked by lymphocytes and connective tissue. However, in the case of the kidney, the autotransplanted are attacked and destroyed at a later period than the homoiotransplanted pieces. In this case we must assume that under the abnormal conditions after transplantation into the subcutaneous tissue even in the same animal, such abnormal metabolic products are formed that an attack by the host tissue and a secondary destruction takes place.

8. The substance secreted by the corpus luteum which calls forth growth in the uterine mucosa may be active not only in the autotransplanted, but even under

5. Sale, Llewellyn: Arch. f. Entwicklungsmechanik, 1913, xxxvii, 248.
6. Hesselberg, Cora: Jour. Exper. Med., February, 1915.
7. Loeb and Addison: Arch. f. Entwicklungsmechanik, 1909, xxvii, 73; 1911, xxxii, 44.
8. Sale, Llewellyn: Arch f. Entwicklungsmechanik, 1913, xxxvii, 248.
9. Myer, Max H.: Arch. f. Entwicklungsmechanik, 1913, xxxviii, 1.
10. Hesselberg, Cora H.: Jour. Exper. Med., February, 1915.
11. Kerwin, W.: To be published.

the adverse conditions prevailing in the homoiotransplanted tissue. But in the latter case a weakening in the effect of the growth substance takes place. The injurious action of body fluids in the other individual detracts from the efficacy of the growth substance.

9. On the basis of these observations, we may formulate the following conception of the relations between different tissues: A certain metabolic activity on the part of parenchyma of various organs determines the attitude of lymphocytes and of fibroblasts toward the parenchyma. If the activity is normal, lymphocytes do not, or only to a slight extent, enter the parenchyma. The connective tissue is held in a definite state of activity. If within certain limits (which still permit the continued life and even growth of the tissue) the metabolic condition of the parenchyma becomes abnormal, the connective tissue in contact with the parenchyma loses its normal state of activity, produces fibrous bands (and perhaps the fibroblasts invade the parenchyma in larger number) and thus compression is exerted on the parenchyma, and cirrhosis caused and ultimately the transplanted tissue is destroyed. This is one mode in the production of cirrhosis. Under other conditions, the presence of actual defects in the parenchyma may under the guidance of stereotropic stimuli[12] also produce an invasion by connective tissue and thus lead to cirrhosis. We notice in certain mucous membranes that directly beneath the epithelium the connective tissue is richer in cells than elsewhere. This may, in conformity with the theory just presented, be due to the stimulating effect of the metabolism of the epithelium similar to that exerted by normal parenchyma on the connective tissue after autotransplantation.

A similar abnormal metabolic condition of parenchyma may perhaps also be produced in certain states of immunity, and thus it may be explained that in animals immunized against tumor growth, various mononuclear leukocytes invade or surround the tumors. On the basis of our theory, this would be a process secondary to metabolic changes resulting from the effect of substances produced in the animal through immunization and acting on the tumor cells, or directly produced through immunization in these tumor cells, the combination of this immune substance and the tumor cells influencing certain host cells in a manner comparable to that caused by parenchyma after homoiotransplantation.

Connective tissue and lymphocytes may therefore be regarded as organs of attack, lying quiescent under ordinary conditions, but exerting their efforts as soon as within given limits certain pathologic changes take place. While according to the view commonly held and mainly inaugurated by Weigert (so-called inflammatory) connective tissue growth accompanying round cell infiltration is of a regenerative character, destined to fill out actual defects or to take the place of cells markedly injured and unable to continue a vigorous life, our observation points to the conclusion that also tissues not essentially injured in their vitality and not markedly changed in their morphologic character may as a result of altered metabolic conditions influence lymphocytes and connective tissue in such a manner that cirrhosis and a partial or total destruction of the parenchyma results.

12. Concerning the significance of stereotropic stimuli for the growth of tissues, compare the following paper: Loeb, Leo: Ueber die Regeneration des Epithels, Arch. f. Entwicklungsmechanik, 1898, vi, 237, Chapter 13.

REPORT OF TYPHOID EPIDEMIC OCCURRING THREE MONTHS AFTER THE USE OF PROPHYLACTIC VACCINE

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During the early months of the spring of 1914 several cases of typhoid fever occurred in the Minnesota School for Feeble Minded and Colony for Epileptics at Faribault. An exhaustive search through the use of the Widal test in some 1,601 inmates disclosed the presence of a positive reaction in twenty-eight. Further investigation by means of isolation tests revealed the fact that eight of these inmates were active carriers.

To prevent the development of new cases, the administration of typhoid prophylactic was begun immediately. A total of 1,520 patients were inoculated in the usual manner. All patients having given positive Widals were isolated until the completion of the prophylactic treatment. New cases ceased to develop following the administration of the prophylactic until the outbreak of the current epidemic.

In order to determine the agglutinating property of the blood, following the prophylactic treatment, specimens of blood were taken from all who were inoculated. Complete results showing reactions in males and females, and the percentage are given in detail in Table 1.

TABLE 1.—RESULTS OF WIDAL TESTS MADE FOLLOWING IMMUNIZATION

	Male		Female		Total	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Positive reaction....	262	18.8+	215	15.4+	477	34.3+
Atypical reaction....	130	9.3+	135	9.7+	265	19.0+
Negative reaction...	317	22.8+	331	23.8+	648	46.6+
Total Widals taken	709	51+	681	48+	1390	100

About the middle of September, three months subsequent to the completion of the administration of the antityphoid vaccine, several patients were admitted to the hospital with symptoms somewhat resembling those of typhoid fever. As these patients had been previously inoculated, a diagnosis of typhoid fever was not justifiable without a more thorough investigation.

On request the State Board of Health kindly consented to assist us in this task. Blood cultures were taken from twelve of the patients with the result that the *Bacillus typhosus* was found in one instance. This same patient gave a positive Widal reaction following the use of the prophylactic, and also after the onset of the disease. At necropsy typhoid ulceration was found in the ileum, thus verifying the nature of the infection.

Specimens of feces and urine were collected and examined; the *Bacillus typhosus* was isolated in two cases and the bacillus paratyphosis in three. Widals were made at intervals during the course of the epidemic. Of the forty-six patients examined, thirty-nine gave positive Widals, one gave an atypical reaction, two gave agglutinations with the bacillus para-

typhosis, and three remained negative, although manifesting clinical signs of typhoid fever. Due to oversight, no Widal was made on illustrative Case 3.

Owing to the complexity of symptoms, including pharyngitis, cultures from the nose and throat were made, which showed the presence of diphtheria bacilli in eleven of the patients. These being of a non-virulent type, prove conclusively that they bore no important relation to the course of the disease.

The typhoid occurring in separate buildings scattered over a wide area made it possible to dismiss the previous carriers as a source of infection, and to focus attention on the food, milk and water supply.

The distribution of food is from a central kitchen, and the milk supply is from the institution dairy. The major portion of the water is obtained from the city water supply, and the remainder from our own artesian well. The general water supply as a source of infection was ruled out, since sewage contamination was found to be improbable.

A spring on the east side of the grounds was considered, since it is possible for it to receive surface drainage, and several of the patients had had access to this water. As the majority of the patients had not partaken of this water, it was evidently not the primary source of infection. No carriers were found among those concerned with the preparation and distribution of food.

Investigation of the conditions existing at the dairy disclosed the fact that the dairyman had an ambulatory case of typhoid. The dairyman's wife was ill at the time; her symptoms were of an indefinite nature and a subsequent Widal was found to be positive. Neither the dairyman nor his wife had previously received prophylactic treatment. A milker, one of the inmates, had been removed to the hospital a few days previous to the investigation of the dairy, and after a prolonged prodromal stage developed clinical typhoid fever. He had returned recently from a short vacation in an adjacent town, where he no doubt contracted the disease. The daily association of the dairyman and his wife with this milker indicates that he was the original source of infection. Precautionary measures were immediately instituted. The dairyman and his wife were relieved from duty, and all the milk was sterilized during the next four weeks. Milk formed part of the diet of every individual who contracted the disease.

After the incubation period of twenty-one days had passed, new cases ceased to develop, showing conclusively that the milk supply was the source of the epidemic.

A total of fifty-seven cases in this epidemic were diagnosed as clinical typhoid. Of this number forty-six were inmates and the remainder were employees. Only one of the employees had received the prophylactic, and three of the inmates were uninoculated.

The following typical case histories are presented to illustrate the symptoms as they appeared in the clinical picture.

REPORT OF CASES

CASE 1.—(No. 7) G. M., girl, aged 18; admitted to the hospital Sept. 23, 1914; discharged Dec. 23, 1914.

Personal History.—Widal test made May 20, 1914, negative; typhoid prophylactic administered May 27, June 6 and 16, 1914. Widal test made July 9, 1914, negative.

Present Illness.—Began with severe headache, anorexia, nausea and vomiting and diarrhea, followed by marked prostration, restlessness and delirium. Tongue coated, sordes marked, abdomen very tender, spleen palpable. Rose spots appeared on the abdomen. Temperature on admission, 101 F., and 104 to 105 in the afternoon for ten days, gradually declining to normal on the thirty-sixth day. Stools contained occult blood on the eighth day, and two fairly large intestinal hemorrhages occurred on the thirteenth day.

On the fourteenth day 3,000 units of diphtheria antitoxin were administered.

Laboratory Findings.—Widal test made Sept. 29, 1914, atypical. Widals made Oct. 3, 1914, and Nov. 1, 1914, positive. Blood culture taken Sept. 30, 1914, negative. Throat culture taken Oct. 10, 1914, showed diphtheria bacilli of a non-virulent type.

CASE 2.—(No. 9) A. E., man, aged 23. Admitted to hospital Sept. 24, 1914. Discharged Nov. 25, 1914.

Personal History.—Widal made May 6, 1914, negative. Typhoid prophylactic administered May 27, June 8 and 22, 1914. Widal made July 1, 1914, positive.

Present Illness.—Complained of headache, sore throat and abdominal distress for about a week before admission to hospital. On admittance had headache, pain in limbs, coated tongue, some abdominal tenderness and anorexia. Constipated during entire course of the disease. Temperature 103.4 F. when received at hospital, and fluctuated between 102 and 104 for eight days. Began to decline the ninth day, reaching normal on the twenty-first day. From twenty-first to thirty-first day the temperature was very irregular, varying from 96.4 to 101.8. It remained subnormal or normal on the forty-seventh and forty-eighth days, and rose to 101 on the forty-ninth day, dropping to normal on the following day. On the seventeenth day of the disease 3,000 units of diphtheria antitoxin were given.

Laboratory Findings.—Widals made Sept. 28, 1914, Nov. 1, 7, 9, 13 and 17, 1914, negative. Widal made Nov. 22, 1914, positive. Blood culture taken Sept. 30, 1914, negative. Throat culture taken Oct. 10, 1914, showed diphtheria bacilli of a non-virulent type.

CASE 3.—(No. 10) M. L., man, aged 24, admitted to hospital Sept. 24, 1914. Died Oct. 16, 1914.

Personal History.—Widal made May 30, 1914, negative. Typhoid prophylactic administered June 5, 15 and 25, 1914. Widal made Aug. 17, 1914, negative.

Present Illness.—For a few days before entering hospital the patient was annoyed by frequent epistaxis, diarrhea was marked and pains in the back were severe. Temperature 101.6 F. on admission to hospital, and rose to 104.6 the following day. Temperature remained high until the fifteenth day in the hospital, when there was a sudden drop of 99, with evidence of perforation. The next day his temperature rose to 105, the abdomen became tense and the patient died.

Laboratory Findings.—Blood culture taken Sept. 30, 1914, negative. Necropsy showed two small perforations in the ileum and numerous ulcers, some beginning, some mature and others healing.

CASE 4.—(No. 13) C. S., man, aged 21. Admitted to hospital Sept. 26, 1914. Discharged Nov. 25, 1914.

Personal History.—Widal made May 30, 1914, negative. Typhoid prophylactic administered June 5, 15 and 25, 1914. Widal made July 14, 1914, negative. Widal made July 18, 1914, positive.

Present Illness.—Five days prior to entering hospital there was anorexia, fatigue and pains in the back and neck. Entered hospital September 26 with tongue heavily coated, stools watery and very offensive. Temperature 101 to 103.6 for thirty-three days, when it began to recede and the patient made an uneventful recovery.

Laboratory Findings.—Blood count normal. Blood culture taken Sept. 30, 1914, negative. Widals made Oct. 26 and Nov. 1, 1914, positive. Throat culture taken Oct. 10, 1914, showed diphtheria bacilli of a non-virulent type.

CASE 5.—(No. 20) H. T., girl, aged 5, admitted to hospital Sept. 29, 1914. Died Nov. 27, 1914.

Personal History.—Typhoid prophylactic not given.

Present Illness.—Admitted to hospital with bronchitis. Temperature 102 and 98 to 99 for twenty-four days, then rose

suddenly to 103 with extreme prostration, restlessness and delirium. Sordes marked, abdomen tympanitic, spleen palpable. Temperature ranged from 103 to 105 in the afternoon, until death occurred on the fifty-eighth day.

Laboratory Findings.—Widals made Oct. 12, 1914, and Nov. 1, 1914, negative. Widals made Nov. 7, and Nov. 9, 1914, atypical. Widal made Nov. 13, 1914, positive. Necropsy: Ulcers found in large number in the ileum.

CASE 6.—(No. 31) C. C., woman, aged 36, admitted to hospital Oct. 5, 1914. Discharged Nov. 25, 1914.

Personal History.—Widal made May 21, 1914, negative. Typhoid prophylactic administered June 2, 12 and 22, 1914. Widal made July 11, 1914, negative.

Present Illness.—Patient suffered from anorexia and general malaise for ten days. Then had a sudden, severe rigor with throbbing headache, severe backache and pain in the chest. Was constipated and had a racking cough. There was a marked tenderness in the right iliac region, tongue coated, sordes marked, rose spots on abdomen. Crepitant râles could be heard in the bases of both lungs posteriorly, but no dulness was found. Temperature on admission 100.6 and ranged from 103 to 104 in the afternoon for nine days, then gradually declined and reached normal on the sixteenth day.

Laboratory Findings.—Widal made Oct. 26, 1914, atypical. Widals made October 29 and November 1, 7, 15, 17 and 22, negative. On November 17 agglutination was obtained with the *Bacillus paratyphosus,* and this bacillus was isolated from the stool.

CASE 7.—(No. 43) C. M., man, aged 17, admitted to hospital Oct. 22, 1914. Discharged Dec. 4, 1914.

Personal History.—Widal made May 6, 1914, negative. Typhoid prophylactic administered April 30, May 11 and 21, 1914. Widal made Aug. 13, 1914, negative.

Present Illness.—Complained of headache and abdominal pain two days previous to admission. On admission the patient was very nervous and covered with profuse perspiration; tongue heavily coated, anorexia, slight abdominal tenderness over splenic area. Spleen became palpable and a few rose spots appeared. Constipated during course of disease.

Laboratory Findings.—Widals made Nov. 1 and Nov. 24, 1914, positive.

The foregoing histories illustrate a more typical course of typhoid than is presented in the majority of the cases. Symptoms common to all cases were anorexia, indefinite pain in back, neck or abdomen, headache and constipation. Acute toxemia and marked prostration were present in but three of the previously inoculated patients. In fact it is worthy of note that many of the classical symptoms of typhoid, such as enlargement of the spleen, rose spots, epistaxis and abdominal tenderness were absent in most cases. However, the course of the disease did not appear to be appreciably shortened. The mortality among the vaccinated was 9.1 per cent., or less than one-half of that occurring among the unvaccinated, which was 23 per cent.

The cause of an epidemic of this nature so shortly after the completion of vaccination with the antityphoid vaccine is a subject for further discussion.

Various reports submitted by recent investigators who have had vast experience in the use of the prophylactic among large numbers of individuals, show that it is not an uncommon occurrence for typhoid fever to develop among a certain proportion of protected persons.

The use of the vaccine by the Germans in 1904 in the Herero campaign in Southern West Africa, resulted in a diminution of the occurrence of cases among the protected to about one-half as compared with that among the unprotected. The mortality among the unprotected was about four times as great as among the protected.

Figures computed by Col. R. H. Firth, covering the first six months of the year 1911, relative to vaccinated soldiers in India, show that the case incidence for typhoid was approximately five times greater among the non-protected than among the protected.

In a recent article by Frederick F. Russel,[1] U. S. A., are cited the remarkable results obtained by the use of the prophylactic in the United States army during the past six years. He says:

> Table 1 shows that the number of cases in the United States proper has fallen from 3.53 per thousand men to 0.03 in the six years; the death rate has fallen from 0.28 in 1909 to zero in 1913. In both instances the greatest improvement has been during the past three years since the vaccination was made compulsory.

No doubt these extraordinary results were in part due to the fact that camp sanitation was greatly improved and the chance of infection reduced to a minimum.

In the epidemic under consideration about one-half as many cases occurred in the protected as in the non-protected, and the mortality among the protected was less than one-half that among the non-protected.

No doubt the proportion of cases among the protected individuals would have been greatly reduced were it not for the fact that the milk, which was the source of infection, was saturated from day to day with typhoid bacilli.

So far as we are able to ascertain from the literature investigated, there is no record of a protected community having had one of the chief sources of food supply contaminated with typhoid bacilli over an extensive period of time, as occurred in this recent epidemic.

Other factors to be considered which might influence the proportion of disease incidence in vaccinated individuals, are as follows:

The possibility of the vaccine used having been overheated during its preparation, which accounted for the unsatisfactory results obtained by those who first experimented with its use. The use of vaccine which has deteriorated from not being kept at the proper temperature, or on which the time limit has expired. Faulty technic in the method of administration. Failure to adhere to the proper time interval between inoculations and to the correct number of bacteria injected.

The vaccine used in inoculating individuals connected with this institution was prepared and furnished entirely by the State Board of Health, used within the specified time limit, and kept at the proper temperature. The method of administration, the dosage, and the time interval were adhered to as recommended by the State Board of Health, except that 10 minims instead of 7½ were given at the first inoculation. Statistics show that 65 to 70 per cent. of exposed individuals have a natural immunity and therefore do not contract the disease.

It is evident from a study of this epidemic, and from the experience of others, that the typhoid vaccine in some cases fails to confer immunity, or confers only partial immunity.

Laboratory investigations by means of the Widal reaction have shown in those cases previously inocu-

1. Russel, F. F.: Antityphoid Vaccination in the Army During 1913, THE JOURNAL A. M. A., May 2, 1914, p. 1371.

lated with the vaccine, that the blood in most cases has acquired the power of agglutinating typhoid bacilli.

We know that following a clinical attack of typhoid fever the agglutinating property of the blood is present, and that frequently this is lost after varying lengths of time, while the individual possesses as a rule a lifelong immunity. At present the only laboratory index by which immunity is suggested is the appearance of agglutinins in the blood. The occurrence of clinical typhoid fever in those having been previously inoculated proves that the appearance of agglutinins in the blood is not a positive index of immunity.

Of those who developed typhoid fever in this epidemic, 14.3 per cent. gave positive Widals after inoculation, 21.4 per cent. gave atypical reactions, and 64.3 per cent. gave negative reactions.

Negative blood reactions following the use of the prophylactic may be due to one or more of the following factors: incorrect interpretation of the reaction; improper dilution of the serum; the use of freshly isolated cultures, which often resist agglutination; and, decomposition of the blood, due to incomplete drying of the specimens collected. It is also worthy of note that the agglutinating power of the blood does not remain constant, which is clearly shown in Table 2.

TABLE 2.—RESULTS OF WIDALS MADE IN 127 INDIVIDUALS (MALES) AT TEN-DAY INTERVALS FOLLOWING FIRST, SECOND AND THIRD INOCULATIONS

	Reaction Following First Inoculation		Reaction Following Second Inoculation		Reaction Following Third Inoculation	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Positive reaction....	12	9.4+	67	52.7+	37	29.1+
Atypical reaction....	9	7.0+	15	11.8+	22	17.3+
Negative reaction....	106	83.5+	45	35.4+	68	53.5+
Total Widals taken.	127	100	127	100	127	100

Reviewing the findings in the preceding table, it is noted that the positive and atypical reactions begin to appear following the first inoculation. Following the second inoculation, there is a marked increase in the positive and a slight increase in the atypical reactions. The positives following the third inoculation decrease almost 50 per cent., while the atypicals show a steady increase.

CONCLUSIONS

1. Typhoid fever may be contracted by individuals who have received the prophylactic and who subsequently show a positive Widal.

2. The course of the disease is not appreciably shortened in vaccinated individuals.

3. The mortality is markedly reduced among protected persons.

4. Protected persons having typhoid fever fail to give many of the classical symptoms of the disease.

5. The development of paratyphoid is not prevented by the use of the typhoid prophylactic.

6. The degree of immunity conferred by the prophylactic in some cases fails to prevent the development of typhoid when the individual has been subject to repeated exposure.

7. The Widal reaction as a criterion of the presence of immunity is of uncertain value.

Typhoid vaccination applied as a routine measure in all of our hospitals and institutions is the one and only method to pursue to eradicate this ever present, serious, and often fatal disease. As a step in this direction State Boards of Health throughout the country are giving their cooperation and furnishing the vaccine free, to stimulate its use.

To the Minnesota State Board of Health we owe a debt of gratitude for their ever willing and hearty cooperation; their assistance in locating the source of the epidemic; and their promptness in performing the various laboratory tests.

MEDICAL INSPECTION OF OPEN AIR SCHOOLS

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Since the introduction, in 1908, of open air schools into the educational system of America, the number of these schools has increased at a surprising rate. To-day every city has an open air school, and the general plan is well known to all.

It is not the object of this paper to deal with the whole subject of this type of school, but with a feature which, up to this time, has received little comment.

As these institutions differ in many ways from the ordinary school, so also does the medical inspection present different problems.

The Edward Mott Moore Open Air School of this city was among the first to be opened in America, and we have been able in the past six years to try out various plans for medical inspection. After many experiments we have developed a system that is meeting requirements. As many physicians have been and will be called on to supervise work of this nature, we have thought that the results of our experiences might be of value to them in undertaking such work.

I will endeavor to outline briefly the work as it is carried on at the present time.

The medical inspection of our school is not under the direction of the city school inspectors, but is provided by the Rochester Public Health Association, which maintains a general dispensary as well. In many ways this removal from the regular school system is an advantage. The child is really taken as a patient of the association, and all problems of physical welfare are settled by physicians from the staff. Thus it is possible to make complete physical examinations, while in the regular schools they are very limited, as the child must be examined dressed. The difficulty of having directions followed in regard to corrections of physical ailments, which presents such a problem in the regular schools, is here eliminated, as we have, and exercise, the right to exclude or dismiss any children not following out our instructions. Of course such children are allowed to return to their former schools. Under these instructions would come removal of tonsils and adenoids, fitting of glasses, dental work, etc.

The routine now is as follows: All applications for admission are made at the association building, and the examinations are made on a certain afternoon of each week by the medical director of the association. If the case is suitable, recommendations are made for filling the teeth, removal of tonsils and adenoids, treatment of skin conditions and correction of anything that would prevent the child getting the most good out of the school.

At one time we simply made recommendations for these corrections and then admitted the children, but now we will not admit a case until all instructions have been carried out. This makes a reexamination necessary before the child can be put on the waiting list. Thus we are certain that the children are in good condition, and we are saved the trouble of forcing the parents to care for these matters later.

After the first examination, a visit is made at the home by the school nurse, who reports back on the home and financial conditions. If the parents are unable to take the child to a private physician for such care as is needed, the child is admitted as a patient of the association dispensary, where all examinations and operations may be secured. The nurse on this visit gives advice as to food, sleeping quarters, open windows, etc. She also fills out a report card on the home, and takes the history of the case as outlined.

Before we had a special nurse to visit these homes, the parents seemed to have an idea that the school would provide all the food required each day, and children were sent to school without breakfast, and some had no meal at night. As no school pretends to give a full diet, this made treatment, in not a few cases, very difficult. Such matters are now explained by the nurse.

If all directions have been carried out, the name is sent to the school, and when a vacancy occurs, the child is admitted.

The nurse gives the child a bath, takes a record of his weight, height, pulse, temperature and chest expansion on the day of admission. These records, together with the report of the health association examinations, the nurse's report on the home and history are before the physician when he makes his first examination at the school. Then the child is given a fairly complete physical examination, which is recorded on the chart. A test for the percentage of hemoglobin is also made.

So we have for each child in the school:

1. Report of examination at time of application.
2. Report of home conditions.
3. History and physical.
4. Chart showing temperature, pulse, height, weight, chest expansion and hemoglobin.

For keeping the four reports, both sides of two cards 7½ by 9¼ inches are utilized.

1. Across the top of the front of the physical examination card, with spaces for filling in, are the words: Name...., Date of Birth...., Nationality...., Address...., Age...., Sex...., School...., Grade...., Date of Admission...., Sent by...., Examined by Dr. ...., At R. P. H. A. ...., 19...., Date of Discharge...., 19...., Diagnosis...., Principal...., Examined by Dr. .... .

The remainder of the card is divided into two columns, one headed "History" and the other "Physical Examination." To guide the examiner, the history column contains the following outline: Family History—Father—Mother—Brothers—Sisters. Tuberculosis—Nervous Diseases—Alcoholism—Home Conditions—Sleeping Rooms—Boarders. Previous History—Habits—Diet—Tea—Coffee—Alcohol—Sleep—Work—Bowels—Urination. Diseases of Childhood—Venereal History. Previous Diseases—Pneumonia—Pleurisy—Rheumatism—Tonsillitis—Tuberculosis. Injuries—Operations—Present History.

The physical examination column contains the following outline: General Appearance—Nourishment—Deformities—Spinal Curvatures—Skin—Mucous Membranes—Color—Eyes—Ears—Nose—Throat—Tongue—Teeth. Heart—Apex Beat—Dulness—Character of Sounds—Regularity—Murmurs—Vessels—Pulse—Blood Pressure. Chest and Lungs—Inspection—Palpation—Percussion—Auscultation. Abdomen—Liver—Spleen—Extremities—Joints—Reflexes—Lymph-Nodes—Clinical Data—Urine—Blood—Sputum, etc.

Beneath is printed: Diagnosis..... Date.... 19...., Examiner, Dr. .. .

2. On the back of this card are columns for data under the following headings: Date; Time; Temp.; Pulse; Resp.; Weight, G., L.; Height; Chest, I., E.; Hem.; Remarks. There are twelve blank lines, and at the bottom: Teeth: Condition...., When cared for.... .

3. The front of the home investigation report card contains the following outline to be filled in: No. .., Name...., Address...., Sex...., Age...., Previous address...., Nativity...., In U. S. how long...., City...., No. in family...., Boarders, male...., female...., Health of boarders...., Father...., Mother...., Brothers...., Sisters...., Relatives ...., House...., No. rooms...., No. sleeping rooms...., Occupies front...., rear...., Adjoining houses how near...., Yard...., Balcony...., Size of child's room...., No. windows...., Open...., Closed...., Sleeps alone...., Others in room...., Sunlight...., Hours in room...., Bathroom...., Diet...., Milk...., Eggs...., Alcohol...., Does child work ...., Average weekly income...., Present income...., Means of support...., Insurance...., Rent...., Any business done on premises...., Carfare...., Towels...., Amount paid for meals per day...., Parents' attitude...., Reported to...., Reported from...., Family physician.... .

4. The back of the card is ruled with twelve lines, one for each month, with columns headed as follows: Date (with five vertical subdivisions); Summary of visits: Sick, cooperative, primary, subsequent; Remarks; Days Absent. At the bottom is a space for special notes.

After admission, the children are given a bath once a week and at that time records are taken of the temperature, pulse, weight and chest expansion. These records are placed on a chart where they may be read by all. This helps to keep the teachers familiar with the physical condition of the children. The hemoglobin is recorded twice a year.

Once a month every child in the school is seen by the physician. The patient is stripped to the waist and a general examination made. The physician has before him the record card and can usually, at a glance, tell if anything unfavorable has happened since the last examination. If any loss of weight, increase in temperature or other symptoms are recorded, a more careful examination is then made.

An office with examining table is provided for the physician, and the children can be examined rapidly, with two or three being prepared for examination all the time. In order to save time it is better to examine boys on one day and girls on another.

On certain months, special attention is given to the eyes, on another to the teeth or to spinal curvatures, and so on. We have called in specialists for consultation in selected groups of cases.

It is surprising how much can be learned in regard to a case in a very short space of time by this method.

All recommendations are noted on the chart and followed up the next month. The nurse makes notes of suggestions, and confers with the mothers if necessary. If we find that the child needs medical or surgical treatment, we have a record of the financial condition, and know whether or not the family has a private physician. If there is a family physician, we advise that the child be taken to his office, and furthermore, our suggestions are nearly always carried out. If the family is unable to secure such care, the nurse takes the child to the dispensary for treatment.

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Unless the family physician advises against treatment, the corrections, as suggested, have to be made or the child is dismissed to return to the regular school. Great care is exercised that the rights of private physicians be respected.

It may seem at first glance that the records are too complete to be practical, but when it is considered that every child is supposed to be in need of special care; that we take many children predisposed to tuberculosis, from homes where the disease exists; and also that no case of actual tuberculosis is taken, it will be seen that the ordinary school examination, as to-day practiced, will not answer if results are to be obtained. Many of the cases of anemia, cardiac disease and malnutrition also need close attention.

Complete records give us a better understanding of the case and therefore add interest to the work. Records assist greatly in the treatment and save much time for the attending physician. Lastly, they are valuable for reference and as statistics after the child leaves the school. The cards are kept in individual envelopes and on file.

We have carried out this program with a nurse visiting the school once a week, and with teachers assisting at examinations; but this was unsatisfactory. Unless a physician can give several hours a week to the work, a school nurse is very necessary, if only on part time. At present we have a nurse but five forenoons a week for sixty children. The physician averages about three hours a week at the school.

We are of the opinion that a school nurse, even on part time, is one of the most valuable assets that an open air school can have.

The duties of such a nurse are: 1. To visit the homes, reporting home conditions, history of the case, etc. To advise the family as to proper hygiene and care of the child. 2. To give the children weekly baths and to record weights, temperature, etc. 3. To assist the physician at all examinations and to file the records of the case. 4. To investigate cases of absence, because irregular attendance greatly interferes with good work at the school. 5. To supervise health matters at the school in the absence of the physician.

Further duties of the school physician are: 1. To inspect the building and school rooms frequently. 2. To offer suggestions as to exercises, clothing, open windows, food, rest and in fact anything in general hygiene that may be presented.

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"Final Causes" Not the Province of Science.—Science has practically given up answering whys and contents itself with describing hows. If you ask a scientific man why a stone falls to the ground, he will tell you that he doesn't know. Not long ago he would have replied that it fell to the ground because the earth and stone attract one another. This is very much the same as saying that an unsupported stone falls to the ground because, as has been ascertained by frequent experiments, an unsupported stone falls to the ground. But if you ask a scientific man how a stone falls to the ground, his intelligent countenance will light up at once and he will talk for a long time. He will talk about the acceleration of the stone, mention Newton, and say something which sounds complicated about inverse square of the distance and directly as the masses. In short, Newton's law of gravitation tells how bodies approach one another, but does not profess to say why they approach one another. There are some ingenious gentlemen, many of whom live in France, who think that is all science can do, and perhaps they are right.—*Scientific American.*

THE USE OF CITRIC SALTS IN CONGESTIVE DYSMENORRHEA

AND THE RELATION OF THE LATTER TO THE VAGOTONIC STATE

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An apology seems in order for this apparent intrusion within the domains of gynecology; but the internist is so frequently consulted in reference to dysmenorrhea associated with conditions pertaining to his province, that perforce he must be adept in relieving the menstrual anomaly by virtue of general treatment.

The organic forms are herein not considered. Morbid states of the ovaries, ducts and uterus comprise definite clinical entities, often requiring surgical intervention, and yet there seems to be an associated cause in the congested endometrium itself which frequently persists after operation. How often are we chagrined to find our patient unrelieved by fixation of the uterus or dilatation of the cervical canal!

Many nulliparas who have not suffered social infection are victimized by a primary or an acquired congestive form of dysmenorrhea. Even the constitutional states may be included in the same category. Tuberculosis, rheumatism, chlorosis, gout and other diseases are associated with impaired integrity of the endometrium and predispose to congestion. The possible exceptions are the relatively few individuals deficient in hormones, the pituitary, thyroid, ovarian or suprarenal secretions.

To be brief, most non-organic types of painful menstruation, frequently complicated by sterility, may be ascribed to the one essential—congestion. Furthermore, organic conditions, as minor malpositions and moderate atresia, may be largely dependent on the same fundamental factor.

In explanation of this problem, Mosher[1] defines the physical causes. The dependence of dysmenorrhea on the erect posture, tight lacing and costal respiration is beyond question. There can be no doubt that obstruction to the return flow of blood from the pelvis is a potent cause of uterine anomalies, and the method suggested to encourage the return toward the right heart has been found to produce excellent results. Briefly, the subject is taught to exert deep, diaphragmatic movements by the forceful raising and lowering of the anterior abdominal wall.[1]

It seems, however, that we must go further in elucidating the problem. There are three chief factors concerned in the production of functional dysmenorrhea: First, a morbid condition of the endometrium. Loeb's work[2] indicates that at menstruation there is little epithelial denudation; and yet with long-standing congestion with secondary inflammation, it seems probable that clotting and other causes may induce separation to a greater or less degree. Secondly, the consequent interference with uterine contraction and obstruction to its discharge which become aggravated by uterine and cervical spasm. The spasmodic influence assumes additional importance in the vagotonic, to which reference will be made later. Lastly, the nervous element. No disorder illustrates the per-

1. Mosher, C. D.: A Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with the Menstrual Function, THE JOURNAL A. M. A., April 25, 1914, p. 1297.
2. Loeb, Leo.: The Experimental Production of the Maternal Placenta, and the Function of the Corpus Luteum, THE JOURNAL A. M. A., Oct. 30, 1909, p. 1471.

sonal equation better than menstrual pain. Every case is individual, and there seems to be an excellent opportunity here to utilize measures toward strengthening the psychic element.

That the morbidity of the endometrium may be appreciated, brief reference is made to the changes occurring during the premenstrual stage. As a sequence to vascular relaxation, the intercellular spaces in the deeper layers become greatly swollen. The stroma cells also take part in the edema, and the glands are dilated, with infiltration of their epithelial lining and distention of their lumina with mucus and blood-cells. The superficial stratum of the mucosa allows less engorgement and remains a compact layer overlying the spongy tissues. It is believed that as a result of increased pressure, this surface epithelium becomes necrotic and is then exfoliated with the onset of the flux. As mentioned above, in recurring congestive inflammation there is greater separation of epithelium, and fibrinous membranes with thrombi are of common occurrence, characterized by varying degrees of discomfort. In the most pronounced form this represents membranous dysmennorrhea.

Over a year ago I[3] suggested that increased viscosity of the blood takes part in the production of dysmenorrhea. The causative factor is faulty hygiene, defective elimination, nitrogenous overindulgence, sedentary occupation and tight lacing. At the time of uterine congestion, the blood in this organ is more viscid, and with the accompanying stasis there is greater infiltration of serum into the neighboring tissues. This induces a change in the chemical equilibrium of the endometrial cells, by causing the cellular colloids to absorb more serum and transforming this gelatinous material into a viscid mass. The effects are greater distention of the spongy layer and increased vascular stasis and mucus production, with the consequent shedding of fibrinous and thrombotic membranes. With this morbid state the ovum cannot readily engraft itself, and sterility is a frequent sequel. Reducing the viscid blood inhibits the formation of clots and membranes; stasis is diminished and excessive edema of the endometrium retarded. Bleeding through the glands is increased, and diapedesis through stroma and epithelium lessened.

In regard to treatment, nitrogenous food raises the viscosity of the blood, and accordingly is restricted before the menses. Catharsis depletes the portal circulation, and at times a hot compress is applied for the purpose of relaxation. The important procedure is the reduction of viscosity through the use of sodium citrate,[4] 20 grains three times daily, during the week or two preceding the expected period. The mode of action is peculiar to the citrates. Diuresis does not explain the results. It seems probable that the alkaline citrate neutralizes carbonic acid and other waste products and increases oxidation, thus proving to be the most efficient method for preventing cellular edema and diminishing viscosity. For the technical study of the chemistry involved in the production of edema, the reader is referred to the recent work of Woolley.[5]

The clinical evidence in support of the efficacy of this treatment is the improvement of pain and the reduction of clots and membranes in the menstrual discharge. Further, nausea, dizziness, headache and mental irritability are vastly improved.

There are types in which dysmenorrhea is an expression of the vagotonic state. Increased irritability of the craniosacral nerves leads to a higher degree of uterine and cervical spasm. Neugebauer discusses the symptoms of this vagotonic type of dysmenorrhea, and speaks favorably of the use of atropin.[6] The menses occur usually at three-week-intervals, and are profuse and painful. Other symptoms of vagotony are readily identified. The signs and treatment of this neurosis were discussed in an earlier communication[7] and in the writing of Wolfsohn.[8]

In other instances, dysmenorrhea attends the hypoplastic state with persistent thymus and frequently the incomplete forms of hypothyroidism. Sehrt[9] suggests that hyperesthesia of the genital sphere depends on protracted auto-intoxication, owing to the lack of thyroid secretion. It seems certain that thyroid insufficiency frequently coexists with the vagotonic neurosis, and the addition of thyroid extract is very effective in treating this disorder. Hertoghe[10] recommends the extract for menorrhagia in adolescence, and states that the anemic influence of the menses is thereby reduced. From personal observation, thyroid extract appears to regulate the menses in certain secretory anomalies and to reduce the intermenstrual leukorrhea. This applies particularly to chlorotics, for whom pituitary extract proves a valuable adjuvant to the thyroid medication.

At this point there is need for protest against self-medication in menstrual pain. At the earliest symptom of pelvic discomfort there is a demand for the palliating influence of alcoholic mixtures. We may well accuse ourselves of partial responsibility for this circumstance through our unwitting administration of alcohol. Practically all tonics depend largely for their effectiveness on the menstruum. More or less inactive drugs are combined with a considerable quantity of alcohol and are thus prescribed. Degradation to the proprietary is a ready sequence. Long sufferers are ready prey to enticing "wines" and "compounds." Others go further, progressing to the use of household liquors until a state of quasi-intoxication induces vasomotor relaxation and soothes the menstrual agony.

Highly intellectual women on close inquiry acknowledge recourse to their favorite remedy, an alcoholic prescription from the family physician, a much vaunted nostrum or crude liquor. The effect is similar: the alcohol is demanded when the patient is "unwell," and the habit is formed to continue during many years. When our young Americans at seminary and summer hotel are supplied by anxious mothers with whisky or nostrum, it seems incumbent on our profession to exert every effort in restraining this pernicious tendency and to prescribe appropriate measures for the replacement of alcohol in its varied disguises.

3. Spitzig, B. L.: Cause and Treatment of Menstrual Membranes, Cleveland Med. Jour., November, 1913, p. 760.

4. Since the earlier report the salt is used in place of citric acid. It seems probable that the acid exerts its action after its conversion in the body to the alkaline salt.

5. Woolley, P. G.: Factors Governing Vascular Dilatation and Slowing of the Blood-Stream in Inflammation, THE JOURNAL A. M. A., Dec. 26, 1914, p. 2279.

6. Neugebauer, H.: Vagotony, Wien. klin. Wchnschr., 1914, xxvii, No. 28; abstr., THE JOURNAL A. M. A., Aug. 8, 1914, p. 518. Since writing the present article, the work of Novak has come to my attention: Novak, Emil: The Atropin Treatment of Dysmenorrhea, THE JOURNAL A. M. A., Jan. 9, 1915, p. 120. Novak's article contains additional references.

7. Spitzig, B. L.: Vagotony and Its Relation to Mucous Colitis, THE JOURNAL A. M. A., Jan. 31, 1914, p. 364.

8. Wolfsohn, J. M.: The Normal and Pathologic Physiology of the Visceral Nervous System, THE JOURNAL A. M. A., May 16, 1914, p. 1535.

9. Sehrt, E.: Thyroid Insufficiency in Relation to Nervous Disturbances and Spastic Constipation in Women, München. med. Wchnschr., 1914, lxi, No. 8; abstr., THE JOURNAL A. M. A., April 4, 1914, p. 1130.

10. Hertoghe, E.: Thyroid Deficiency, Med. Rec., New York, Sept. 19, 1914, p. 489.

THE ABDERHALDEN REACTION *

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During the past year considerable doubt has been cast on the specificity of the Abderhalden reaction. Abderhalden assumes that specific ferments capable of attacking only placental tissue are elaborated as the result of the entrance of placental cells into the general circulation. He used two methods of demonstrating the digestion of the placental tissue by the serum of pregnant women; the first method was by means of the polariscope, and the second, by means of dialyzing membranes. The second is the one he recommends for clinical purposes. According to this method, the serum and specially prepared placental tissue are introduced into a dialyzing thimble, and the thimble then placed in distilled water. The mixture is placed in the incubator, and the fluid outside the thimble tested the following day for the presence of substances reacting with ninhydrin. The latter substances are supposedly derived from the placental protein as a result of the action of the specific ferments. According to Abderhalden, the greatest precaution must be taken in making the test in order to prevent bacterial contaminations, as the dialysate of the tubes showing bacterial growth will almost invariably give positive ninhydrin reactions.

Within the past year, articles have appeared in which the specificity of the reaction has been questioned, and others which deny the presence of such specific ferments. In his replies to these articles, Abderhalden states that their results are due to faulty technic, and that his assistants never fail to get positive results with serum from pregnant women and negative results with other serum.

If we accept Abderhalden's view, we must assume that specific ferments may be liberated, or generated, as the result of the entrance into the general circulation of any of the cells of the host. If this is so, what prevents the destruction of the remaining cells of the same type?

In the views which he has advanced, Abderhalden ignores entirely the antitrypsin normally present in the blood. Possibly he believes that this specific ferment is not subject to antitrypsin influence. Jobling and Petersen found that protein digestion occurs in serums containing proteolytic ferments if the antitrypsin is removed, and that these substances can be extracted by chloroform and ether, or adsorbed by treating the serum with kaolin, starch and agar. In other words, any agent which will remove the antitrypsin from a serum containing proteolytic ferments can take the place of the placental tissue in the Abderhalden test. This probably explains why Abderhalden reactions may usually be obtained with guinea-pig and rabbit serums, as these serums usually contain ferments.

Are there proteolytic ferments present in the serum of pregnant women which will attack only placental protein and which are not present in other individuals, and the action of which is not prevented by the antitrypsin normally present in the serum? To this question I must answer no. During the past year we have examined the serums of a large number of patients entering the hospital suffering from various diseases, and also a number of supposedly healthy individuals. We found that strong proteolytic ferments are rarely present in healthy human beings, but that they are present in large amounts in pregnancy, pneumonia and certain cachexias. We were able to obtain positive Abderhalden reactions in all human serums containing many ferments, regardless of the disease, not only with placental tissue, but also by extracting the serum with chloroform, or by using starch. Positive reactions were obtained with starch almost as readily as with placental tissue. In each case the serum was tested for its antitryptic strength before and after the tubes were incubated, and always found to be much lower after incubation. In those tests made with normal serums, the antitrypsin was also decreased, but the Abderhalden reaction was negative because there were no, or not sufficient, ferments to act on the exposed serum protein. While other substances will give a positive Abderhalden reaction with serum containing proteolytic ferments, placenta appears to be the best agent. It is not clear just why placenta should be the best agent for the adsorption of antitrypsin; possibly it is because there is a larger area of exposed surface.

The ferment of the serum was demonstrated in two ways. First we removed the antitrypsin with chloroform, as recommended by Jobling and Petersen, and second, added 0.2 per cent. acetic acid to the serum, as recommended by Opie. The serum was then incubated. The presence of ferments was indicated by digestion of the serum proteins. This was demonstrated by observing the increase in non-coagulable nitrogen. We have shown that the placental tissue is not digested, and that it contains as much and often more total nitrogen after digestion with positive serums than before. Further, we have found that such treated placental tissue is more resistant to the action of trypsin than the untreated. This is due to the fact that it has taken up antitrypsin.

The greatest care was taken throughout this work to prevent bacterial contaminations, and numerous cultures were made. In no instances was bacterial growth obtained. The thimbles were tested before and after making the tests, and the experiments discarded if subsequent tests cast doubt on their permeability.[1]

I must conclude, then, as a result of our work, that specific proteolytic ferments capable of attacking only placental tissues do not exist in the serum of pregnant women. Ferments are present in the blood of such individuals, just as they are in patients suffering from pneumonia, cachexias, etc., but they are not specific for any particular human protein, and are made evident only when the antitrypsin has been partially removed. A positive reaction is due to the adsorption of the antitrypsin by the placental tissue, thus permitting the ferment to act on the exposed serum protein.

The serum protein, and not the placental tissue, forms the substrate from which the substances are derived which give the positive Abderhalden reaction. This is shown by the increased resistance of such treated tissue to the action of trypsin, and also by the fact that nitrogen determinations show that the tissue is still intact.

I do not wish to intimate that the test is of no clinical value, but I do think that a negative test has more significance than a positive. The value of a positive test can be determined only when we have become more familiar with the conditions in which these pro-

* From the Department of Pathology, Vanderbilt University Medical Department.

1. The details of the experiments mentioned above will appear in an early number of the Journal of Experimental Medicine.

teolytic ferments appear in the blood in sufficient quantity to give a positive Abderhalden reaction. The antitrypsin of the serum influences the proteolytic ferments and deserves consideration. It has been shown that in pregnancy, pneumonia and cachexias the serum has a high antitryptic titer. I believe, as suggested by others, that this would be a more reliable indication of pregnancy than a positive Abderhalden reaction.

MERCURIC CHLORID POISONING IN ANIMALS TREATED UNSUCCESSFULLY BY PARENTERAL ADMINISTRATION OF HALL'S NEW ANTIDOTE

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Some attention has been given in this laboratory to a recently proposed method of combating mercuric chlorid poisoning. Hall[1] suggests for this purpose a reversal of Mayer's reaction for the precipitation of alkaloids. These substances, as is well known, form insoluble compounds with mercuric potassium iodid. Wishing to render mercury insoluble in the body, Hall proposes the employment of an alkaloid dissolved in a potassium iodid solution, and has selected quinin as comparatively harmless and readily obtainable. His solution is in the following proportions:

Potassium iodid.....	7.35
Quinin hydrochlorid.....	4.0
Water	480.0

This forms a precipitate with mercuric chlorid in dilute acids or alkaline carbonates, and should therefore compare favorably with the ordinary antidotes now given into the alimentary canal.

Greatest interest, however, attaches to its parenteral administration in the hope of fixing the mercury which has already reached the blood and tissues. This I have attempted, but with quite negative results. In like manner Kunkel[2] once attempted to cure mercuric chlorid poisoning in rabbits by causing the animals to breathe small amounts of hydrogen sulphid in the hope of precipitating mercuric sulphid in the blood; beneficial results were not obtained.

Comparing microscopically the precipitate obtained by adding Hall's antidote to mercuric chlorid with a precipitate of mercuric sulphid, one sees that the granules of the Mayer precipitate are much smaller than the mercuric sulphid granules, and therefore if formed in the blood should be much more easily disposed of by the body. But can the precipitate be formed in the blood? Unfortunately not, at least in concentrations of mercuric chlorid in the blood as high as 1:1,000. This is shown by the test-tube experiments recorded in the accompanying tabulation.

The same results were obtained whether the antidote was added in equal parts with the mercuric chlorid-serum solution or in the proportion of one antidote to three mercuric chlorid-serum.

Thus the great obstacle to the therapy of mercuric chlorid poisoning, and in fact to so many other attempts at chemotherapy, is again encountered, namely, that the poison has a far greater affinity for the tissues (for instance, the proteins and other colloids in the blood serum) than for any non-toxic remedy that can be found. Our antidote fails to detach the mercury from its firm combination.

Not relying entirely on the foregoing significant serum tests, I have made a number of experiments on mice and rabbits.

In a preliminary series of mice, subcutaneous injections of mercuric chlorid in doses of from 0.01 to 0.02 gm. per kilogram of animal were found fatal in from two to six days; 0.1 gm. per kilogram of animal killed in from two to ten hours. I therefore selected 0.05 gm. per kilogram of animal as a dose which would probably kill not immediately, but within a day or so. Six mice were given this dose (subcutaneously) at about 10:30 a. m. Three of them received Hall's antidote (in amount sufficient to precipitate all of the mercuric chlorid) intraperitoneally within an hour. All six animals were alive at 5 p. m., and all six were found dead early the next morning.

Rabbits were even more discouraging. Two were given 2.5 mg. per kilogram mercuric chlorid intravenously, followed by intravenous injection within an hour of an amount of the Hall's antidote sufficient to precipitate all of the mercuric chlorid, in two equal injections one-half hour apart. Both had diarrhea and marked albuminuria the first few days, but the one which received no antidote survived twenty-one days, and the one which received the antidote died within nine days. Similarly, two rabbits received 5 mg. per kilogram each of mercuric chlorid intravenously, and one was given a corresponding amount of antidote, dying within six hours. The one receiving no antidote survived three days.

TEST-TUBE EXPERIMENTS

	Concentration	Precipitation with Hall's Antidote
Mercuric chlorid in saline	1:100,000	(?)
Mercuric chlorid in saline	1: 25,000	+
Mercuric chlorid in saline	1: 10,000	++
Mercuric chlorid in saline	1: 1,000	+++
Mercuric chlorid in fresh ox serum.	1:100,000	none
Mercuric chlorid in fresh ox serum.	1: 25,000	none
Mercuric chlorid in fresh ox serum.	1: 10,000	none
Mercuric chlorid in fresh ox serum.	1: 1,000	none

Thus the antidote was of no help in these experiments.

When the mercury is taken by mouth, as is usual in cases of poisoning in man, it is of course impossible to say how much reaches the circulation. Within recent years a case occurred in New Haven in which a whole gram was taken and no symptoms followed, although treatment was delayed for some hours. The poison was taken after a hearty meal, which of course prevented absorption.

One decigram of corrosive sublimate, rapidly absorbed, is given by the best authorities[3] as the minimum fatal dose for an adult. So-called "cures" after much larger amounts have been taken must be attributed to vomiting, purging or some other hindrance to rapid absorption by the body, such as abundant stomach contents or gastric atony.

The foregoing results indicate the apparent futility of parenteral treatment of corrosive sublimate poisoning by such a good precipitant of mercury as Hall's solution. As an adjunct to stomach washing it will quite possibly be found equal in value to tannic acid, white of eggs, or milk, etc., which are now employed.

1. Hall, W. A.: A New Antidote for Corrosive Sublimate Poisoning, Wayne County Med. Soc. Weekly, Dec. 21, 1914.
2. Kunkel, A. J.: Handbuch der Toxikologie, Jena, 1899, p. 147.
3. For example, Meyer, H. H., and Gottlieb, R.: Die experimentelle Pharmakologie, Berlin and Vienna, Ed. 2, 1911, p. 463.

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HUMAN SERUM IN URTICARIA *

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Although a new chapter in the therapeutics of certain diseases of the skin has been opened by the use of human serum, so little has as yet been reported that all additional information is of the utmost value. The following case of obstinate urticaria associated with joint pains and a purpuric eruption presents some points of much interest. The disease did not yield to any of the ordinary methods of treatment, and it was found that the coagulation time of the blood was markedly increased. While some of the skin reactions with foreign proteins were somewhat suggestive, none was really positive, and the elimination from the diet of the substances which gave suggestive reactions had no apparent results. Epinephrin had a temporary beneficial effect.

On account of the increased coagulation time of the blood, and the fact that this time returned to normal when a drop of fresh human serum was added to a drop of the patient's blood, it was decided to try the effects of human serum given intravenously. The patient's brother was selected as a donor after all proper precautions had been taken, and six intravenous injections of his serum were given, a total of about 100 c.c. There were no bad effects from the serum. The longest interval between doses was twenty days. The patient has had no hives since the fifth injection, seven and one-half months ago, the coagulation time of the blood has been normal and she has felt better generally than for many years.

The literature on this subject is very brief. It is not necessary to review it here as this has been quite recently done by Fox,[1] Gottheil and Satenstein[2] and Hilario.[3] There is still much work to be done on this subject, in regard to the kind of serum of most value, the number of injections and the dosage. The case given here merely shows results in one type of case and with one method of treatment. The whole question of just how the serum acts remains quite unsolved.

In investigating other cases of urticaria in this connection, it has become apparent that they are certainly not all associated with an increased coagulation time of the blood, but that there are other factors at work.

REPORT OF CASES

History.—C. B. S., widow, aged 45, seen first, Feb. 25, 1914, complained of attacks of hives for eight months, with itching, pains in the joints and purpuric spots. The patient's father died of sarcoma. There was some rheumatism in the family. Otherwise the family history was negative. The patient was a small eater, and her habits of eating were regular. She had taken no coffee since onset, two cups of tea a day, and no alcohol. She took eggs about once in three days, cheese every day or two, usually cream cheese, occasionally Roquefort, but no cakes. She always took pepper on eggs but rarely on any other food. She ate meat once a day, no tomatoes, and no strawberries, as they bring out "red marks" on the skin. The average weight was 130 pounds, but the patient had lost weight recently. She did not take much exercise since onset, but before that a lot. She was not sleeping well and was taking adalin. Menstruation was irregular. There were no children, and there had been no miscarriages.

The patient had had mumps. Seven years ago, the right tube and ovary and the appendix had been removed. The operation had been followed by postoperative pneumonia. Two years ago she had a small tumor removed from the breast. There had been no recurrence. The patient had never been very robust. Eight months ago while in California, the patient was ill all one night with vomiting and diarrhea. Next morning she was covered with hives. There had been one very slight attack years before. She thinks that the attack eight months ago was due to eating oysters. No one else in the party was ill. Since then she has had six or seven attacks of urticaria, although she has been on a diet which excluded shell-fish and fruit and allowed only a little meat. At one time she had only rice for five days. In the intervals between attacks she had felt quite well. There was no asthma in the family and the patient had had none. The hives were accompanied by intense pain as well as itching, and were generally especially painful on the soles of the feet. During the attacks and afterward she suffered from grip-like pains in the bones of the legs and spine and at times in the joints. With the attacks purpuric spots were common, especially about the elbows and knees. The eyes and lips swelled. The appetite was never good. The bowels had been very costive since onset, but before that, fairly regular. Urination had been very frequent for the past two weeks, with some tenesmus. Formerly the patient did not have to get up at night, but now she had to two or three times. She was drinking a great deal of water. The interval between attacks was three or four weeks. The attacks were not becoming worse or more frequent. She was just recovering from an attack which kept her in bed for eleven days, and has been up for the past five days. The nose bled easily and frequently and always when the patient was on a high mountain.

Physical Examination.—The weight was 116 pounds. The patient was somewhat nervous. The color was good. There was no eruption. There was a very slight fulness in the region of the thyroid. Heart: The left limit of dulness was 11 cm. to the left of the midline in the fifth space. There were no murmurs. It was normal except for slight accentuation of the aortic second sound. The arteries were just palpable. The blood pressure was 145 and 85, the rate 85, regular. The rest of the examination was normal. The urine was pale, acid, specific gravity 1.011, and contained a trace of albumin, but no sugar or indican. There were few leukocytes, epithelial cells and hyaline casts. Blood examination revealed hemoglobin, 80 per cent.; spread appeared normal. There were no eosinophils.

Course.—March 2: Skin reactions with horse, rabbit and hen serums and egg albumin were all negative. Reactions with coffee, buckwheat flour and oysters were slightly suggestive. Milk showed a small wheal and marked erythema. The patient was put on a diet of fruit, green vegetables, potato and cereals without milk, and iron and strychnin tonic. The blood pressure was 150. The coagulation time (slide method), complete, was fifteen minutes.

March 4: Skin reactions with beef serum, sheep serum, buckwheat, milk, raw halibut and cooked halibut were all negative. Coagulation time (Brodie method) was from twelve to seventeen minutes; control, five minutes.

March 6: 1. Coagulation time (Brodie) was from seventeen to eighteen minutes. 2. Blood + calcium chlorid, 5 per cent. in normal salt solution, was unclotted in thirty-one minutes. 3. Blood + a small drop of normal human serum, twenty-four hours old, resulted in coagulation in seven minutes. 4. Human serum, diluted 1:10 with saline + patient's blood, resulted in coagulation in seventeen minutes. 5. Human serum, diluted 1:5 with saline + patient's blood, resulted in

* This work was done by Dr. Swann during the first half of 1914, his death preventing its continuation and his investigation of other cases of urticaria along this and other lines. On this one case, however, he left complete notes, from which this report has been written. It has been necessary only to wait a sufficient length of time and to make a few final observations in order to be sure that the good results have persisted.

1. Fox, Howard: Autogenous Serum in the Treatment of Psoriasis, THE JOURNAL A. M. A., Dec. 19, 1914, p. 2190.

2. Gottheil, W. S., and Satenstein, D. L.: Autoserum Injections in Certain Obstinate Dermatoses, Med. Rec., New York, 1914, lxxxv, 620; The Autoserum Treatment in Dermatology, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1190.

3. Hilario, J. S.: A Contribution to the Autoserotherapy of Certain Diseases of the Skin, Jour. Cutan. Dis., 1914, xxxii, 780.

coagulation in ten minutes. 6. Undiluted serum + patient's blood, as in 3, resulted in coagulation in seven minutes. These tests were repeated by the slide method with approximately the same results. Skin reactions with buckwheat and coffee were negative. Milk was suggestive.

March 8: The patient felt better. There had been no hives for three days. The diet had been increased. Milk, coffee and pepper were the only articles prohibited.

March 13: There was an attack of hives this morning with pain, swelling and redness of the left thumb joint. Blood pressure was 135. Weight was 117. Blood-platelet count was 200,000. The coagulation time by both the slide and Brodie methods varied between fourteen and seventeen minutes. The coagulation time of blood + old human serum was the same, but the clots were firmer and more solid.

March 23: Coagulation time was nineteen minutes. The patient felt and looked better. There had been no hives since the last note. The weight was 119 pounds, blood pressure 145. The patient began taking cod-liver oil March 19.

March 30: The patient had had hives every day off and on for five days. The coagulation time was from sixteen to nineteen minutes. The weight was 120 pounds. The patient had moderate hives last night with a swollen and painful finger. Report on stool of March 25 was: Dark brown, pasty mass. No mucus. Faintly acid. No blood. Urobilin moderate. Carbohydrate fermentation considerable. Trypsin moderately diminished, digestion in twenty-four hours. Amylopsin normal. Microscopic examination revealed no pus or red blood cells; no ova or parasites; many muscle fibers showing marked striations; many fatty acid crystals; few fat globules and very little starch. Smears showed Gram-positive organisms present in about 50 per cent. of the total number.

April 6: There were moderate hives last night with swollen and painful finger and elbow. Pain was severe to-day. The coagulation time was nineteen minutes, after epinephrin, fourteen minutes. The blood pressure was 138. Five minims of epinephrin were given.

In seven minutes pain and stiffness were better. Blood pressure was 130.

In ten minutes there was no pain. Stiffness was better but numbness persisted.

In seventeen minutes numbness was less. Blood pressure was 130.

In twenty-five minutes numbness was worse again. Blood pressure was 125.

In seventy-five minutes pain returned again in the finger and thumb. Seven minims of epinephrin were given.

In four minutes the pain was better. Blood pressure was 125. In eight minutes the pain was gone.

In ten minutes the pain returned to a slight degree, but did not become severe. Four hours later the pain was practically gone. There was slight numbness in the fingers. Blood pressure was 138.

As the patient continued to have hives throughout the preceding period of observation, it became necessary to find some means of relieving her. Careful diet had had no appreciable effect. Owing to the fact that the patient's coagulation time was considerably prolonged and that the addition of human serum to her blood made the coagulation take place in approximately normal time, the idea of the intravenous administration of human serum presented itself and was decided on. At the time it was not known that this had been previously done in one or two similar cases. Accordingly, her brother's blood was tested in every way and found suitable.

April 7: One c.c. of the brother's serum was injected subcutaneously. As there was no reaction in forty-five minutes, 8 c.c. of the same serum was injected intravenously. There was no reaction.

April 15: Coagulation time was from twelve to fifteen minutes. Twenty c.c. of the brother's serum were given intravenously. One hour later the coagulation time was fifteen minutes. On the day following the first injection the patient had a slight attack of hives which vanished spontaneously. There were none again until April 11, when she was awakened by hives and bad pains in the fingers. The attack lasted three or four hours, and was so bad that 5 minims of epinephrin were given. In about half an hour the hives were completely gone. They returned in twelve hours, but disappeared immediately on repetition of the epinephrin. April 12, the patient had an attack in the morning and in the evening, each attack yielding promptly to epinephrin. There had been no recurrence until this morning, when there was an attack with pain. In fifteen minutes after 5 minims of epinephrin had been taken, all symptoms disappeared.

April 17: There had been no hives since April 15. The patient felt better and stronger. Coagulation time was from twelve to fifteen minutes.

April 22: The patient had been well and had had no hives until April 19, when they suddenly appeared during the day and persisted until 10 p. m. During the evening of April 20 the patient had some red blotches but no wheals. There was little or no itching. April 21 blotches again appeared, but they were not severe. To-day the blotches had been worse. There had been no pain since the last injection of serum. The third dose of serum was given to-day, 20 c.c. intravenously.

April 23: The patient had hives yesterday until bedtime, when they disappeared. She is much better to-day. There are no hives or itching. The fourth dose of serum, 20 c.c. intravenously, was given. This serum was thirty hours old. Half an hour after the injection the coagulation time was from seven to nine minutes.

April 27: The patient felt much better. There had been no hives, itching or pain since April 22. The coagulation time was ten minutes, the weight 120 pounds.

May 8: There had been no hives until May 1, when the patient had a mild attack late in the evening, not bad enough for epinephrin. They did not keep her awake. There was a slight recurrence May 2, and on the following day they were worse and accompanied by pain in the fingers and toes. Since then the patient had had slight attacks off and on. She felt very well. This weight was 124 pounds, the coagulation time ten and one-half minutes.

May 13: There had been no hives since May 8. The patient felt very well. The coagulation time was fifteen minutes. The fifth dose of serum, 20 c.c., intravenously, was given.

May 14: The sixth dose of serum was given to-day, 10 c.c. intravenously.

May 15: The weight was 124 pounds. The patient felt very well. There had been no hives since May 8. The coagulation time was twelve and one-half minutes.

May 21: The patient felt very well. There were no hives. The coagulation time was seven and one-half minutes.

June 4: The patient felt very well. There were no hives.

June 13: The patient was perfectly well. There was no suggestion of hives. The coagulation time was four minutes, control six minutes. The blood pressure was 160.

June 23: The patient, June 20, had eaten part of a radish. Almost immediately it began to "repeat," and she had cramps, then diarrhea and a little indigestion until yesterday. June 22 she had a few little red spots on the hand, foot and about the waist. They were very few and not like hives. She also had some pains in the joints. To-day the spots had disappeared, but there was a little tenderness in the joints of the hands and feet, but nothing else. The coagulation time was four minutes. Control from 5 to 6 minutes.

October 11: The patient had had a fine summer and felt very well. She had had no hives. There had been an occasional twinge of pain in her joints. The coagulation time was four and one-half minutes.

Conservation of Resources.—The real thing that we have to conserve in America is the American people, their energy, their elasticity, their originative power, their capacity to hope and to achieve.—Woodrow Wilson, quoted by Irving Fisher, Memorial Relating to the Conservation of Human Life.

PULSUS ALTERNANS DETECTED BY THE SPHYGMOMANOMETER

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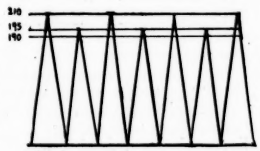
It is a matter of common observation that in many conditions, notably cardiac arrhythmias, the sphygmomanometer will often detect the fact that in a given heart the beats may vary in strength, some strong beats pushing through to the artery at the wrist, though the pressure of the manometer cuff is sufficient to cut off all those that are weak or of average power. The arrhythmia of mitral stenosis when auricular fibrillation has set in is a good example. In the hypertension of chronic nephritis or of arteriosclerosis, the same phenomenon may be encountered.

When the systolic pressure is being tested in a patient in whom an alternating pulse is present, a manometer pressure may be reached that cuts off every other beat—the weaker beat—thus halving the rate of the pulse at the wrist. Increasing the pressure on the brachial artery, by still further inflation of the cuff, of course blocks all the beats. Then slowly letting out the air, the point is reached at which the stronger comes through; when still more air is allowed to escape, another point is met where the alternate, weaker beat is perceived, thus doubling the pulse rate, that is, reestablishing the original rate. The difference in strength between these beats, when thus controlled by the sphygmomanometer, which exerts a pressure just below the maximal pressure for the weaker beat, is relatively great, and this difference is plainly perceptible to the palpating finger on the radial artery. The test may also be made by the auscultatory method of using the blood-pressure apparatus.



At 210 mm. Hg, no pulse is felt at the wrist. Below 210 and above 195, the stronger beat is felt. Below 195, for example at 190, the pulse rate doubles and the beats are alternately strong and weak.

As illustration, a man of 45 with large heart, cardiac asthma at night, albumin, casts and albuminuric retinitis, clearly has a high blood pressure. No irregularities in the rhythm or difference in strength of the pulse beats are made out by ordinary palpation of the radial artery. The pulse is 80 to the minute. When the pressure of the manometer reaches 195 mm. of mercury, the radial pulse drops to 40 and remains at that rate until 210 mm. is reached, when it disappears. On testing in the reverse order, above 210 the beat at the wrist is lost; from 210 down to 195 the strong beats come through at the rate of 40 per minute; below 195 the beats are 80 per minute, the new, added beats being perceptibly feebler than those coming through at 210 (see diagram). The pulse is clearly of the alternating character, and the sphygmomanometer shows what the finger alone at the wrist could not detect. At times the stethoscope, sphygmograph, polygraph or electrocardiograph may be necessary to decide as to whether the condition is due to dicrotism, extrasystole, etc.; but in most cases the alternation of the pulse can be made out in the manner described. The information afforded is not always essential, yet it is of help in making a prognosis, the pulsus alternans being rightly regarded as often an evidence of serious impairment of the muscular efficiency of the heart.

So far as I know, this method has not been described by others. If it has, my reference to it will, by repetition, emphasize a simple yet fairly satisfactory means of detecting pulsus alternans.

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RUPTURED APPENDIX AT FULL TERM PREGNANCY

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Mrs. E. J. P., aged 24, German, housewife, married six years, mother of two children, aged 4 and 2 years, had typhoid three years ago. She has had recurrent attacks of appendicitis during the last two years, all very slight, however, and none during the previous eight months.

I was called on Saturday night, April 19, 1913, to attend the patient, as she had expected, during childbirth. On my arrival at her home I found my patient sitting in a chair with her hands over the lower abdomen and complaining of severe pain down low, especially over the right side. She was placed in bed and prepared, and an examination made of the cervix, which showed a slight degree of dilatation, about ¾ inch; the head was not engaged, however, and I felt certain, as the result of my examination, that there would be no need for my services for some time. I went home, leaving orders to be called if any change seemed to take place. I was not called again until Sunday afternoon at 3 o'clock. I found my patient still in severe pain and learned that she had been so ever since I had left her the day before. She had a temperature of 103.6 F.; the pulse was 128. I then made a thorough examination and found the cervix just about as it was at the time of my previous examination, but, on closer survey with my finger, I thought I felt, through the wall of the vagina, what seemed like an abscess located in the region of the appendix. I covered the ground very thoroughly and made a diagnosis of suppurative appendicitis with possible rupture of the appendix.

The patient was removed to St. Mary's Hospital and placed in bed with ice-caps over the appendiceal region, with the hopes of preventing any further trouble until after the child was born. On Monday, however, the conditions were no better, and with the temperature at 104, pulse 140, and slight dilatation, I could see no other way out than to go in and relieve the abscess and drain, at least. At 1:30 p. m. Monday I operated, doing a complete appendectomy, and cleaned out the pus which had formed freely about the much enlarged vessels and ligaments which are at this stage of pregnancy far from the size we generally find them. Hoping to avoid later trouble I placed a rubber tube drain in the culdesac and one in the groin. The incision was closed tightly around the drains, especial care being taken to close the fascia so as to get a good union and avoid separating during the severe strain which was sure to come at the time of childbirth. It was quite difficult to get these parts together, and would have been impossible had I not made a transverse incision through the fascia, a fact which, I think, saved the situation.

Tuesday morning the temperature was 99.3, pulse 88. At noon the labor pains began, and at 12:30 p. m. the patient was put to sleep and an 8 pound 6 ounce boy safely delivered. We had no trouble with the wound. Everything kept its place. The following day the patient complained of severe pain in the right side, due, I think, to the operation and the large drainage tubes, which were still in place. Considerable pus drained from the wound, but the temperature remained about normal and the mother went on to complete recovery. She left the hospital May 4, together with her baby boy.

One thing was very noticeable, and that was the dislocation of McBurney's point in "so pregnant a woman." It calls for some close calculating in locating the point for incision.

Preventogram.—Good food, well chewed, is better than much food quickly bolted.—*Buffalo Sanitary Bull.*

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 662)

VIII

B. DEPRESSANTS: 5. OF THE HEAT CENTERS—(Continued)

ANTIPYRETICS AND ANALGESICS

ACETANILID, ANTIPYRIN AND PHENACETIN GROUP

The introduction of the antipyretics and analgesics of this group affords one of the most interesting chapters of medical history. The high cost of quinin, which resulted in its adulteration, led to efforts to discover a method of preparing it synthetically, and in addition to the cost of the alkaloid, its bitter taste, and its relative insolubility, which interfered with its use by subcutaneous injection, served as a stimulus in the search for a substitute for it. While these efforts were unsuccessful so far as the immediate aims were concerned, they did lead to the discovery of numerous synthetic compounds, including the antipyretic analgesics which have come into use during the past thirty years. Curiously, the best drugs of this group were among the earliest discovered, and the exploitation of the newer members has been largely mercenary.

Quinolin was used as the starting-point in the search for synthetic quinin or a substitute, because it results from the decomposition of quinin, and it retains the antipyretic action of the parent substance, but it is too toxic for therapeutic use.

Kairin and thallin were among the first of the synthetic antipyretics; they soon dropped out of use because of their toxicity. Antipyrin was prepared in 1884 by Knorr, who used phenyl-hydrazin as the starting-point, and who supposed that antipyrin contained two quinolin rings. It is now known to be phenyl-dimethyl-pyrazolon.

Anilin was known, as far back as 1861, to have antipyretic actions, but its toxicity precluded its therapeutic use, and the attempt was therefore made to utilize its antipyretic action while reducing its toxicity by introducing various radicals into the molecule. Acetanilid, which results from the introduction of an acetic acid radical into the anilin molecule, was one of the earliest of these synthetic anilin derivatives, and it continues to be the cheapest and one of the best.

Paramidophenol, very closely related chemically to anilin and phenol, was found in the urine after the administration of one of the antipyretics, and this led to its use as a starting-point in the preparation of synthetic substitutes for the older members of the group. The introduction of an ethyl group into the paramidophenol forms phenetidin, and the introduction of an acetic acid radical into this forms acetphenetidin, or, as it is commonly called, phenacetin.

The antipyretic and analgesic actions of the drugs of the acetanilid and phenacetin type result from certain compounds, such as paramidophenol, which are split off in the body from the parent drug. If they are split off too rapidly the action is too violent, and if they are split too slowly the action is too feeble; hence the therapeutic value of a member of this group depends on a gradual splitting of the drug in the body. Innumerable compounds may be formed by the introduction of other aromatic acid radicals in place of the acetic, or other alkyl groups in place of ethyl, but none of these has proved superior to acetanilid and phenacetin. Some are split very slowly and therefore have very little toxicity, but they are also less active therapeutically, and some are more active therapeutically, but are also more toxic.

Fraenkel says that no cheaper and better substitute for antipyrin and phenacetin can be prepared from the parent substances, and that it is purposeless to continue to multiply these. While we should continue to search for improved antipyretics and analgesics, such improvement can come only with development along wholly different lines.

The various members of the group have closely similar actions, but they show considerable quantitative differences in activity.

Their classification as fever narcotics indicates their depressant action on the higher parts of the brain, and in addition to their depression of the heat-regulating centers, it is probable that they cause an actual paralysis of certain paths concerned with the perception of pain, because even small doses are usually as effective as larger ones in relieving certain forms of neuralgia. They have a slight tendency to induce sleep, and this tendency becomes more pronounced when one remains quiet after relief from headache or other pain, but the mental faculties may remain alert when one exercises them after the relief of headache.

Large doses cause collapse, with disturbance of the respiration and circulation. The heart may become feeble and death may result from cardiac failure, but this is rare, and it never occurs after acetanilid, antipyrin or phenacetin, except when overdoses are taken by enfeebled patients, or excessive amounts by those suffering from minor illness.

Severe, but not fatal, collapse is not infrequently seen after moderate amounts of these members of the group which are decomposed more rapidly than the three members just mentioned. If such rapidly acting members of the group are used, it would be better to employ minimal doses and repeat these more frequently than with the more slowly acting ones, but there seems to be no reason for their continued use.

These drugs do depress the heart somewhat, but this action is overrated by manufacturers of nostrums who claim that their preparations lack this cardiac effect because it is overcome by the addition of caffein or other supposedly antagonistic substance. Curiously, caffein and the antipyretic analgesics of this group have a synergistic action on the heart; hence large doses of such compounds are, if anything, more dangerous than the drug which they are intended to displace.

The antipyretic analgesics produce cyanosis when large doses are used, or when the smaller doses are used continuously, and since they were known to injure the heart to some exent, it was supposed that this injury sufficed to explain the cyanosis. We know that the cyanosis is usually due to the formation of methemoglobin by the products of decomposition of the antipyretics, and the more rapidly they are decomposed in the body, the greater is the action on the hemoglobin. The milder actions leave the corpuscles intact, but with the more violent action the corpuscles are broken down. This does not take place when the drugs are mixed with blood in a test-tube, because the drugs are not then decomposed.

* This is the eighth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

Those antipyretics of this type which are devoid of the action on the blood are also therapeutically useless, because the paramidophenol, or analogous substance, which causes the formation of the methemoglobin is also responsible for the antipyretic action and only those which are decomposed too slowly to exert a pronounced antipyretic and analgesic action are devoid of the action on the blood.

The antipyretics cause dilatation of the vessels of the skin; this promotes sweating, which is useful in the reduction of temperature; in case this is excessive, atropin should be administered in small doses.

The antipyretics, like narcotics in general, lessen metabolism and therefore the production of heat, but this is of much less importance than their action on the heat-regulating centers, for, as previously stated, it is through their influence on the loss of heat that the temperature is regulated for the greater part.

ABSORPTION AND EXCRETION

Antipyrin is very soluble in water, while acetanilid and phenacetin are only slightly soluble, but all are absorbed fairly readily from the gastro-intestinal canal, and are nearly always administered by the mouth.

The rate of excretion appears to depend on the rate of decomposition to a certain extent, and none of the drug appears in the urine unchanged after the taking of moderate amounts of acetanilid, which is decomposed more rapidly than phenacetin.

When the urine of a patient who has taken one of these drugs is exposed to the air, it may assume a dark color because of the oxidation of certain of the decomposition products.

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THERAPEUTIC DOSES

The antipyretic analgesics are not used so frequently as they were formerly for the reduction of body temperature alone, but they are used in much the same conditions for the relief of pain, such as that occurring with influenza; for headache, which accompanies so many types of fever; and to allay nervousness, thereby securing rest and sleep which are essential for the patients' well-being and the want of which is so injurious to the heart and nervous system.

They are sometimes used for the reduction of fever, when this is excessively high, but even in such cases the benefit derived is probably due mainly to one or more of the actions just mentioned.

They are widely used for the relief of headache arising in the greatest variety of conditions. They sometimes afford prompt relief with small doses, and often fail even when large doses are used. In fact, if a small dose fails to relieve headache or neuralgia a large dose seldom accomplishes this.

The wide-spread use of these agents by the laity for the relief of all forms of headache and neuralgia and for pain which often attends menstruation should be discouraged because of the danger of their indiscriminate use, and especially because of the frequency with which overdoses are used in unsuitable cases. The patient who has once obtained relief through the use of a given drug supposes that subsequent failure can be explained only on the basis of his having taken an insufficient amount, with the result that he repeats the dose many times. There is also the danger of the formation of the habit, whenever the drug is used in chronic conditions attended with headache or neuralgia.

Antipyrin is applied locally in concentrated solution as a styptic in hemorrhage of the nose. The antipyretic analgesics have a more limited field of action than morphin, being of little value in pain due to inflammation, but they deserve the preference over opium and morphin in those conditions, such as neuralgia, which they do relieve.

They should be used with caution in debilitated patients in whom the danger of collapse is exceptionally great. Some persons show an idiosyncrasy toward them and exhibit rashes or exanthemas after even moderate doses.

DOSAGE

The average dose of acetanilid is 0.2 gm. (3 grains), but it is better to use an initial dose of 0.1 to 0.15 gm. (1½ to 2 grains) and repeat cautiously when necessary. Antipyrin is given in slightly larger amounts, the average dose being 0.25 gm. (4 grains), and phenacetin is used in somewhat larger doses than antipyrin, the full dose being 0.5 gm. (8 grains), but it is seldom necessary to give more than 0.3 gm. (5 grains) for the relief of neuralgia or headache. The latter dose may be repeated at intervals of three hours until several doses have been taken when necessary. All of the antipyretics are more effective in reducing the temperature if given during a natural remission, and the later in the course of the remission, the smaller the dose required for a given effect.

It is probable that there is little difference in the danger of the several antipyretics mentioned above in the doses given. There is no question, however, that phenacetin is the least dangerous in equal amounts, but since it is also the least active therapeutically, this does not constitute an advantage with the proper regulation of the dosage. Many of the older and some of the later posologic tables give doses of the antipyretic analgesics which can hardly be considered entirely safe. While such doses may be used in certain cases, they are not to be recommended for routine procedure.*

PROPRIETARY PREPARATIONS AND MIXTURES

The Council on Pharmacy and Chemistry gave its attention soon after its organization to several of the more widely advertised mixtures which were then claimed to be synthetic preparations. These preparations were found to be simple mixtures of acetanilid, caffein and sodium bicarbonate or other alkalies, and usually contained small amounts of tartaric or citric acid. The mixtures cost about 2 or 3 cents an ounce and were commonly sold for a dollar an ounce at wholesale. Since the enactment of the food and drug law in 1906 the composition of some has been changed, acetphenetidin being used in place of acetanilid. This further emphasizes the fact that manufacturers of nostrums are in business primarily for profit, with little or no consideration of the interests of the consumer or of the physician who is utilized as an advertising medium for the several preparations.

No one will deny that mixtures containing coal-tar analgesics relieve pain in many cases. Since they are all sold direct to the public, the danger resulting from self-medication is obvious, because it has been definitely shown that mixtures containing caffein and one of the antipyretics requires a special caution in their use. It is unfortunate, to say the least, that the Pharmacopeia of the United States should have countenanced these mixtures to the extent of having

* Owing to lack of space the materia medica of acetanilid, acetphenetidin and antipyrin is omitted. It will be included when the series is published in book form.

recognized the compound acetanilid powder which is one of this type.

In addition to these pretended synthetics, which are unworthy of further consideration, there have been introduced innumerable synthetic preparations of the general type of phenacetin or acetanilid with some added advantage, but unfortunately such advantage is invariably offset by disadvantages. For example, when one of these preparations is less toxic it is also invariably less active therapeutically. It is unnecessary to discuss these substances in detail, for, as we wish to reiterate, there is none which deserves the preference over acetanilid, antipyrin and phenacetin.

(*To be continued*)

Therapeutics

PREVENTION IS GREATER THAN CURE

(*Continued from page 665*)

XXI

DIPHTHERIA (CONTINUED)

F. Care of the Heart

Although it was long considered that heart failure in diphtheria was due to vasomotor paralysis, or to action on the vasomotor center, it has been shown by Porter and Pratt[1] that such is probably not the case: that heart failure is probably due to the action of the toxins on the heart itself. Dr. F. W. White of Boston long ago[2] showed that the heart was frequently affected more or less seriously in diphtheria. White also quotes many other authorities showing that myocarditis is not an infrequent complication, that valvular disease may occur from diphtheria, and that even a chronic myocarditis may persist, or a valvular lesion may persist for months or even years, or for life. White and Smith studied the hearts in a thousand cases of diphtheria, and came to the conclusions that moderate disturbance of the heart is very common in diphtheria, and that persistence of cardiac defects often lasts from two to six months; but generally cardiac disturbances from diphtheria become permanently cured. The mitral valve is the one most frequently diseased, and if a lesion is caused, it is generally insufficiency. About 60 per cent. of the patients with diphtheria show an irregular pulse, and the younger the patient, the more liable he is to have this heart irregularity. It may occur even in mild cases. These investigators found that out of 1,000 cases 878 had a heart murmur of some kind at some period of the disease, either at the apex or at the base. The murmurs were generally systolic. These murmurs usually clear up and are not generally significant of valvular lesions. The murmur at the apex is doubtless due to a relative insufficiency of the mitral valve, because of slight dilatation of the left ventricle. In this investigation, necropsies showed that endocarditis and pericarditis are extremely rare complications in diphtheria.

Dr. G. M. Smith[3] reviews more recent investigations, made on the hearts of diphtheria patients. He quotes Rohmer as concluding that in diphtheria, pathologic changes may occur in the auriculoventricular bundle, but that there is no specific action of the diphtheria toxin on the bundle of His. However, diphtheria toxins may so affect the connecting bundle from a functional point of view that heart-block can be produced, even without demonstrable anatomic lesions.

Clinically, the gallop rhythm, with or without vomiting and epigastric pain and tenderness, is a bad symptom in diphtheria. This gallop rhythm of the heart is very serious, and if accompanied by vomiting, the prognosis is very bad. Hume and Clegg,[4] after an investigation of 573 cases of diphtheria, declare that any form of arrhythmia of the heart (except sinus arrhythmia) in diphtheria indicates that the heart muscle or nerves are pathologically disturbed. This may occur even when the diphtheria is apparently mild.

After a patient is apparently well from diphtheria, if he has been severely ill, and especially if the case has been neglected and a large amount of toxins have been absorbed, cardiac failure may occur any time from the second to the fifth week. Symptoms of late cardiac weakness are often a slow, weak pulse. Such hearts, however, become rapid on the least exertion. Such patients are often very pale, and there are liable to be more or less gastro-intestinal disturbances.

There can be no question that the effects on the heart in diphtheria are due to the Klebs-Loeffler bacillus toxins; consequently, if antitoxin in sufficient dose is given early, the toxic effect on the heart will probably rarely occur. Consequently, cardiac deaths in diphtheria will be less and less frequent with the early proper administration of antitoxin.

The most important treatment of cardiac complication is rest, and prolonged rest. A patient who has shown cardiac inflammation of any kind, or cardiac irritation during diphtheria, should have a prolonged rest in bed and a very slow convalescence. The small dose of strychnin suggested above as a nerve stimulant is probably sufficient. If the heart is very rapid, it may be unwise to give even this small dose. Larger doses do not seem to raise the blood pressure during illness, and strychnin in large doses as a cardiac tonic, in prolonged weakness, is not so successful as has been thought. In an apparently acute failure, a fair-sized dose, 1/40 grain for a child 10 years old, may be given hypodermically; but to persist in large doses of strychnin is inadvisable. Digitalis is not indicated, and alcohol should not be given. Caffein and camphor may be worth while; but the main thing is absolute rest, small amounts of food, the least possible disturbance for bathing, feeding, defecation and urination, and no prostrating purgatives.

G. After Rest

A patient who has recovered from diphtheria, however mild it may have been, should have, for the first two weeks, at least, a carefully watched convalescence. Strenuous exercise should be avoided, and the heart should be carefully examined before the patient is allowed to return to his usual work, school, or play.

H. When to Raise the Quarantine

This has already been sufficiently discussed. Boards of health vary in their requirements. The safest rule would seem to be to release the patient from quarantine after four negative cultures have been taken, each one two days apart; one of the cultures should be taken from the nostrils. The swab specimens

1. Porter and Pratt: Am. Jour. Physiol., 1914, xxxiii, 431.
2. White, F. W.: The After-Effects of Diphtheria on the Heart, THE JOURNAL A. M. A., Oct. 21, 1905, p. 1243. White, F. W., and Smith, H. H.: Boston Med. and Surg. Jour., Oct. 20, 1904, p. 433.
3. Smith, G. M.: A Review of Some Recent Publications on Anatomy and Pathology, Am. Jour. Dis. Child., April, 1913, p. 322.
4. Hume and Clegg: Quart. Jour. Med., 1914, viii, 1.

should be procured by a physician, and should be taken several hours after any antiseptic gargles have been used. Also the last culture should be taken from back of the tonsils and from crypts, if any are present.

I. Fumigation

As stated, formaldehyd or other fumigation is unprofitable in diphtheria, but may be added to thorough germicidal cleaning of the room and its contents. This is a decision for the local board of health.

J. Paralysis

With the early injection of a sufficient dose of antitoxin, diphtheria paralysis will become less and less frequent. The paralysis of the soft palate, which used to be so frequent, is already becoming infrequent. This paralysis occurs early, between ten and twenty days from the beginning of the illness. The treatment consists of tonics, small doses of strychnin, the best of nutrition, fresh air, sunlight, rest, and prolonged convalescence. The general paralyses, which are now rarely seen, were more serious, and occurred later. They are slow in recovery, and besides general treatment, require massage and electricity.

K. Diseased Tonsils

Quite probably diseased tonsils cause a susceptibility to diphtheria, as they certainly do to follicular tonsillitis. After complete recovery from a diphtheria attack, when the general condition is perfect, and the heart is in good condition, operations should remove all portions of tonsils that show disease. Whether complete enucleation should be done, or only diseased portions should be removed, and whether or not the capsules should be left, are subjects for an expert decision.[5]

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LARYNGEAL DIPHTHERIA

Membranous croup is laryngeal diphtheria, and as soon as the diagnosis can be made that there is exudate in the larynx or laryngeal region, antitoxin should be given in large dose, without waiting for a decision from the laboratory that the Klebs-Loeffler bacillus is present. The only safe place for a patient with laryngeal diphtheria is a contagious disease hospital, where expert skill in intubation and, if necessary, in tracheotomy can be quickly obtained. The main danger from diphtheria in this location is suffocation.

The toxemia is not great, and the absorption is much less than in nasal, nasopharyngeal, or even in tonsillar diphtheria.

The best of nutrition is important, as exhaustion from labored breathing is likely to occur. The atmosphere of the room is better moist, on account of the membrane becoming dry and causing more obstruction before it loosens and is coughed up. Just how much local steaming of the throat, or inhalation of various medicated solutions should be given, is to be decided by the individual physician. The main advantage is doubtless from the vapor of water.

The main requirements to be remembered in laryngeal diphtheria are the administration of an immediate large dose of antitoxin; intubation by a skilled operator as soon as indicated; a trained nurse skilled in intubation cases, if such can be obtained; the ability to recall quickly the physician who intubated if the tube is coughed up; the immediate removal by the nurse of the intubation tube if it plugs up, and the quick performance of tracheotomy by the surgeon, if such a measure is needed.

5. French, Thomas R.: New York Med. Jour., Dec. 5, 1914, p. 1097.

SEPTIC SORE THROAT

For some years there have been reported in England epidemics of septic sore throat, some of which have been distinctly traced to infected milk, and all of which probably develop from that source. In the last few years several cities and towns in this country have suffered from epidemics of this character, and in every instance it has been traced to milk from one dairy, and ultimately to one or more diseased cows. The disease that causes such infection is an inflammation of the milk glands, a mastitis, or an inflammation of the udder termed garget. Another possible source for the dissemination of this germ is an infected throat of the milker, or of some one who handles the raw milk.

The germs found in the inflamed udders, in the raw milk, and in the throats of those infected are the same, namely, the *Streptococcus pyogenes*. The largest epidemics have occurred in Boston, Baltimore and Chicago, and in all, about 25,000 individuals have been attacked. The death rate is small, and is due to complications. An epidemic occurring in Boston is described by Winslow,[6] the Chicago epidemic by Capps,[7] and an epidemic in Courtland and Homer, N. Y., by North, White and Avery.[8]

The clinical symptoms have been the same in all of these epidemics, and Capps states that the throats generally show intense hyperemia without a grayish exudate. The cervical lymph glands enlarge, and may suppurate; there is extreme prostration, and a tendency to relapse. The complications are inflammation of the middle ear, abscess around or about the tonsils, and erysipelas or other skin eruptions. The most dangerous and fatal complication is peritonitis, and there may be fatal septicemia, with localization in the lungs. Endocarditis, myocarditis, arthritis, and nephritis may occur as complications in this septic process.

Means of prevention of septic sore throat in epidemics must include a more frequent bacteriologic examination of the udders of cows and of the throats of those who handle raw milk. Pasteurization of milk would prevent these germs from causing infection.

The treatment of these septic sore throats is not different from that of follicular tonsillitis, namely, dilute hydrogen peroxid solutions 1:4, immediate subsequent washings with mild alkaline cleansing solutions, and the local application of a weak iodin solution, as Lugol's solution (too strong iodin preparations might increase the swelling and hyperemia of the throat).

On account of the prostration, the patient should receive plenty of nutriment. The bowels should be moved daily. Pain should be stopped, if it is troublesome, by codein or morphin, if deemed advisable. High temperature should be treated as seems best, and the complications combated as they occur. Infection of others is prevented by the same methods as those described for diphtheria. The blood in this disease should be studied, not only to determine the amount of leukocytosis, and the type that is probably present, but also to determine the amount that gives a favorable prognosis. Such studies may give a clue as to the possible value of an autogenous vaccine.

(*To be continued*)

6. Winslow: Boston Med. and Surg. Jour., 1911, clxv, 899.
7. Capps, Joseph A.: Epidemic Streptococcus Sore Throat—Its Symptoms, Origin and Transmission, THE JOURNAL A. M. A., Sept. 6, 1913, p. 723.
8. North, White and Avery: Jour. Infect. Dis., January, 1914, p. 124.

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SATURDAY, FEBRUARY 27, 1915

THE REDNESS OF CURED MEATS

The bright red which is exhibited by good meat is due in part to the oxyhemoglobin of the blood remaining in it, together with the comparable red pigment which is inherent in the muscle itself, even when it is completely freed from blood. A familiar effect of cooking meat is the pronounced change in color which it undergoes from the application of heat. The reddish tinge changes to a dull brown owing to the disintegration of the oxyhemoglobin, with the liberation of a protein component along with its color-producing group, hematin. A similar alteration is sometimes brought about when meats are cured with ordinary salt brine. Meats preserved in this way or by the application of heat alone, as in the canned meat industry, therefore assume an appearance quite unlike that of the flesh in its raw state.

On the other hand, it is a familiar fact that many meat products offered for sale, and likewise some of those prepared in the household, not only exhibit a bright red, but even retain this practically unchanged after cooking. Indeed, the color may even be intensified. This is true whenever potassium nitrate, or saltpeter, enters into the process. The redness of fresh meat is not destroyed after curing it by means of a mixture of common salt and a small proportion of saltpeter. This feature, in addition to the preservative action of the nitrate, is exhibited in the production of "corned" beef and other similar preparations. Canned corned beef is distinctly red.

The value of the long-practiced saltpeter process of curing meats is not confined to the meat-packing industries of commerce, but has long enjoyed a vogue in the household handling of flesh products that are to be kept some time before use. A recent summary of current knowledge regarding the coloring matter of raw and cooked salt meats by R. Hoagland[1] of the Bureau of Animal Industry in Washington makes it evident that the action of saltpeter in the curing process is primarily to cause the formation of the bright red and decidedly stable nitric oxid hemoglobin. The development of this compound is brought about by the presence of nitrates. The value of saltpeter as a flesh-color preservative is dependent on the reduction of the nitrate to nitrite.

Precisely as hematin, the color-yielding component of oxyhemoglobin, can readily be converted to a well-known reduction product, hemochromogen, so nitric oxid hemoglobin, the coloring matter of cured meats, can be changed under certain conditions to nitric oxid hemochromogen. The latter is commonly a result of the cooking process, and therefore represents the color of cooked salt meats. Hoagland states that it is very probable that in the case of meats which have been cured with saltpeter, or of meat food products in which saltpeter has been used in the process of manufacture, the reduction of nitric oxid hemoglobin to nitric oxid hemochromogen takes place to a greater or lesser degree, depending on conditions of manufacture and storage. The two compounds are so closely allied that their differentiation in one and the same product is not a matter of great importance.

Some idea of the extent to which the preserved color of flesh products is due to the factors noted above may be gathered from the fact that it has readily been recognized in such widely used meats as smoked pork and ham, cured pork, dried beef, corned beef, salami and cervelat sausages. Under the present laws it has been ruled that saltpeter may be used pending further investigation regarding its wholesomeness. The cause of the striking color of meats cured with it has been understood by few persons in the past. With a satisfactory explanation forthcoming, the medical profession is now in a position to know the facts and to be able to conjecture the preliminary treatment which meat retaining characteristic hues has received.

1. Hoagland, R.: Coloring Matter of Raw and Cooked Salted Meats, Jour. Agricultural Research, 1914, iii, 211.

WINE OF CARDUI ACTIVITIES

Turning the light into the noisome pit of charlatanry always stirs into squirming activity those who subsist, either as hosts or parasites, on such business. For nostrum exploiters champion that comfortable doctrine, "Let Us Alone"; they inscribe as their heraldic motto: *Laissez-faire*. To the public unacquainted with THE JOURNAL'S educational campaign of the past decade, it might appear that the exposure of the fraud connected with the exploitation of Wine of Cardui was a veritable crusade into a new field. During the past few months it has been necessary, almost daily, to assure interested laymen that the Wine of Cardui articles were but incidents in THE JOURNAL'S general propaganda of education relative to medical frauds. The amount of "fuss and feathers" displayed in this specific case is due to several causes—remote and proximate. The most important, probably, is the fact that the chief owner of the Wine of Cardui business is one of the most prominent and powerful laymen in

the Methodist Church. Of almost equal importance is the fact that the Wine of Cardui business has been, and still is, enormously profitable. Then there is the incidental fact that the growing spread of prohibition that threatens the millions invested in the distillation of alcohol makes the fate of "patent medicines" of the alcoholic-tonic type—a business not as yet legally affected by prohibitory laws—one of tender solicitude to the distillers. Add to these reasons the further one that the nostrum evil is, to-day, before the bar of public opinion, and it is easy to realize that the Wine of Cardui suits against the Americal Medical Association and the editor of THE JOURNAL are causing a stir such as inevitably follows the lavish expenditure of large sums of money.

An interesting story could be written of some curious coincidences that have occurred since the Chattanooga Medicine Company and its chief owner brought their suits. Articles appearing in the mouth-pieces of the "patent medicine" interests warning the public against the fell designs of the "Medical Trust" have been reprinted and widely circulated; nostrum-championing editorials of the "canned" variety have cropped out in those newspapers that may always be counted on to come to the defense of the "patent medicine" business; decoy letters have come to THE JOURNAL office from hypothetical "doctors," mailed from post-office addresses in villages in which the writers apparently rented a post-office box and to which they went in motor cars to get the "answers" that never came; detectives have posed as journalists seeking information about nostrums of the alcoholic-tonic type and have played the part of visitors to Chattanooga, solicitous (?) of the well-being of the new church organized after the split in the First Methodist Church of that city following the Wine of Cardui exposures; attempts have been made to "work" stenographers; efforts have been put forth to learn in advance the dates of public talks to be given on the nostrum evil under the auspices of THE JOURNAL—these are but a few of the many things that have occurred. Whether any of these occurrences bear any relation to the Wine of Cardui suits or are wholly or partly inspired by the general "patent medicine" interests, or whether they are simple coincidences, we leave for our readers to decide.

But to the medical profession the following synopsis of events will probably be of more interest than the trivial details of the "ways and means" of the nostrum business in defending its unwholesome brood:

1 *a:* THE JOURNAL publishes an article July 18, 1914, showing the fraud connected with the exploitation of Wine of Cardui.

b: Suit brought by the Chattanooga Medicine Company and J. A. Patten for $300,000.00 against the American Medical Association and the editor of THE JOURNAL.

c: THE JOURNAL publishes a second article Dec. 5, 1914, on the same subject.

2 *a:* Dr. Oscar Dowling, one of the trustees of the American Medical Association, in his capacity as President of the State Board of Health of Louisiana accompanies the State Health Train from New Orleans to Richmond, Va. The train carries among its health exhibits exposures of various nostrums including a card dealing with Wine of Cardui. A stop is made at Chattanooga.

b: Dr. Dowling is sued by the Chattanooga Medicine Company for $25,000.00, the papers being served on him before he left Chattanooga.

c: State Board of Health of Louisiana meets and upholds Dr. Dowling, and declares Wine of Cardui a fraud.[1]

3 *a:* The Limestone County (Ala.) Medical Society passes resolutions condemning the methods of the Chattanooga Medicine Company in soliciting physicians to testify for Wine of Cardui.

b: The Chattanooga Medicine Company sends legal representatives to Limestone County intimating that both the society and the individuals comprising it would be sued if the resolutions are not rescinded.

c: The Limestone County Medical Society "stands pat."

4 *a:* The Chicago City Club gives a Public Health Exhibition and among other exhibits has the American Medical Association educational posters on medical frauds, Wine of Cardui cards among them.

b: Local legal representative of Chattanooga Medicine Company attempts to bluff City Club into removing the Wine of Cardui posters.

c: Bluff "called." Nothing happens.

5 *a: Harper's Weekly,* in its series on fraudulent "patent medicines," gives some space to Wine of Cardui and its manufacturers.

b: Harper's Weekly sued for $200,000.00 by Chattanooga Medicine Company.

c: Harper's "comes back" in its issue of February 27.

SIDE-LIGHTS ON THE FUNCTION OF FERTILIZATION

It has long been customary to attempt the solution of some of the problems of protoplasm and the physiologic riddles of life by means of observations on lower organisms and simpler forms. The unicellular animals have afforded particularly useful and easily available objects for investigation from this point of view. Their supposedly simpler structure and more diffuse phenomena seem to render them particularly suitable to elucidate the more general properties of living matter. Among other questions, the problems of protoplasmic senescence and the significance of fertilization have

1. See Propaganda Department, page 761, this issue.

seemed open to direct investigation in this field. In certain of the Infusoria, for example, reproduction proceeds by unprovoked cell division; but the frequent occurrence of conjugation, in all of the species, affords an instance of what may be looked on as the counterpart of fertilization in the higher forms.

Is conjugation an indispensable activity for the prolonged generation of these lower organisms? A few decades ago it seemed established that continued reproduction by fission or division inevitably results sooner or later in degeneration and death. The evidence then available all pointed against the "potential immortality" of the unrejuvenated infusorian protoplasm and made it appear as if conjugation was the sine qua non for the life of the species. In other words, reproduction by division apparently could not proceed indefinitely without conjugation or some other artificial stimulus. The unique studies of Woodruff at Yale University have at length furnished a quite different answer to the rôle of such extrinsic stimulation in the life of the unicellular organisms. When subjected to suitable culture conditions, *Paramecium*, for example, has the power of unlimited reproduction by division without conjugation. This is attested by the fact that Woodruff has maintained a race of this infusorian in a normal condition over seven years through more than 4,500 generations without conjugation or the use of artificial stimuli. The essential condition for this success lies in the use of a suitable culture medium; if this environment is appropriate, the continued health and reproduction of the organisms results. There may be variations in the rate of reproduction by division without conjugation because of some unknown factor in cell phenomena; but recovery from declines thus resulting are autonomous.

Quite recently Woodruff and Erdmann[1] have discovered that despite the absence of conjugation or any form of artificial environmental stimulus, the "pure" races of *Paramecium* undergo remarkable rearrangements in the cells from time to time. It appears that the rhythms in the division rate are the physiologic expression of internal phenomena which involve the formation of a complete new nuclear apparatus, by a definite sequence of normal morphologic changes which simulate conjugation. This nuclear reorganization, in essence, consists of a gradual disintegration and absorption of the macronucleus in the cytoplasm. Simultaneously a multiplication of the micronuclei is in progress. Certain of the resulting micronuclei degenerate, while the remaining one or two form the new macronuclear and micronuclear apparatus. This results in the reorganization of the cell without the fusion of two animals.

This peculiar reorganization process, involving the intermingling of nuclear and cytoplasmic substances occurring within the cell, has been termed "endomixis." It is followed by a slight acceleration of cell phenomena, and a new rhythm is initiated. The process described places some of the fundamental questions of cellular physiology in a new light. We are wont to think of fertilization in the higher organisms as having both a dynamic and a hereditary rôle. If it shall appear that the cell has an internal regulatory phenomenon, endomixis, which is self-sufficient for the indefinite life of the unicellular races—that "senile degeneration" and "physiologic death" in the lower forms are not inevitable without conjugation—fertilization is emphasized anew as a process which attends to the transmission of new qualities. The fertilization mechanism is thus made primarily to serve functions of variation and hereditary transmission. In relation to the fertilization process in reproduction, therefore, the emphasis may be placed more strongly than ever on what it means for heredity rather than for rejuvenation.

Every contribution to the factors involved in the reproduction of cells is likely to throw some light not only on the normal growth of organs and the organism as a whole, but likewise on the pathologic development of tissues as they are exhibited in neoplasms. We need not disparage such studies because to the untutored "practical" mind the phenomena of the lowly creatures possessing a relatively simple organization have little obvious importance. On the contrary, it is a triumph of science to feel great hope that in the immediately near future a notable advance will be made in our grasp of what Sir Michael Foster called "the nature of that varying collection of molecular conditions, potencies and changes, slimy hitherto to the intellectual no less than to physical touch, which we are in the habit of denoting by the more or less magical word protoplasm."

1. Woodruff, L. L., and Erdmann, Rhoda: A Normal Periodic Reorganization Process without Cell Fusion in Paramaecium, Jour. Exper. Zool., 1914, xvii, 425.

REGENERATION OF FIBERS OF THE CENTRAL NERVOUS SYSTEM

Complete anatomic and functional regeneration of fibers in the peripheral nervous system has been demonstrated, but as regards fibers of the central nervous system, complete regeneration has been regarded as doubtful. From recent work, however, there is evidence that both in experiment and in pathologic conditions a marked attempt at regeneration of central fibers takes place. Without going into an extended consideration of the exact manner of regeneration of the fibers, a review of some of the work which has led many to believe this possible may be of interest. Perrero[1] regards the question of regeneration of fibers in the central nervous system as settled now that it is possible by efficient staining methods definitely to distinguish axis cylinders from glia fibrils. He examined

1. Perrero: Contribution à l'étude de la régénération des fibres nerveuses du système nerveux central de l'homme, Arch. ital. de biol., 1910, liii, 21.

the cord of a man dying twenty-nine days after fracture of the fifth and sixth cervical vertebrae; there was complete softening of the cord in these segments, but immediately about the softened area, numerous changes were found in the pyramidal tracts above and in the posterior roots and columns just below the lesion. On the ends of many of the axis cylinders were cones and balls, a result of proliferation of the structures at the peripheral end of the nerve. Fine black threads were observed running out from several of these cones, and other axis cylinders were found broken up into fibrils. The black threads and fibrils displayed a tendency toward plexus formation about the blood vessels. Perrero regarded these as regenerative processes and found them present to an almost equal degree at each end of the injured cord. The regeneration was not extensive enough to pass through the softened area of the cord.

Rossi[2] after experimental hemisection of the cord found marked evidence of regeneration and new fiber production, though never of sufficient degree to pass through the cicatricial zone that forms between the two stumps. Here also regeneration was in equal degree in the central and peripheral stumps of the cord.

Bielschowsky[3] studied the changes in compression of the cord and in tumors of the brain and cord. He found numerous cones and button-like swellings of the ends of the axis cylinders. These were especially prominent about the blood vessels in the marginal zones of the cord around degenerated and compressed areas. He believes regeneration of the fibers in the central nervous system possible, and holds that two things are essential: one, good blood supply, the other, the presence of decomposition cells. These cells may be chemotactic; more probably they act as a framework or scaffolding along which nerve fibers develop. They then would play a rôle similar to the cells of the sheath of Schwann in peripheral nerve regeneration.

Marinesco and Minea[4] found that in experimental and pathologic conditions, regenerated fibers pass into the cicatrix from both the upper and the lower end of the cord. The new fibers end in cones and swellings, and these, they think, are derived from a dissociation of preexisting cylinders. The vessels are surrounded by a plexus of nerve fibers. These workers consider as all important the presence of *cellules atrophiques,* which have both chemotactic and nutritive influences on the new fibers.

Fickler[5] studied two examples of cord compression in which there was marked improvemet in the cord symptoms for some time before death. At the level of the compressed area there were no fibers in the cord. Above this level, however, were many newly formed fibers which passed into the anterior fissure of the cord and into the pia, and passing downward again, merged into the cord below the compressed area, thus connecting the pyramidal tracts above with the ganglion cells of the cord below. In the second example, newly formed sensory fibers passed upward by the compressed area of the cord in the posterior septum. Fickler concludes that fibers are capable of regeneration and that complete restoration of function is possible.

Thus the general view now is that blood vessels and a certain group of cells are especially important in regenerative efforts of central nerve fibers. Whether these cells, which have been called by various names, have a chemotactic or nutritive function, or act as a scaffolding, is still a matter of speculation. At any rate, attempts at regeneration are frequent and extensive, and in favorable instances, restoration really may be possible.

2. Rossi: Processus régénératifs et dégénératifs consecutifs à des blessures aseptiques du système nerveux central, Arch. ital. de biol., 1909, li, 413.

3. Bielschowsky: Ueber Regenerationserscheinungen und centralen Nervenfasern, Jour. f. Physiol. u. Neurol., 1909, xiv, 131.

4. Marinesco and Minea: Recherches sur la régénérescence de la moelle, Nouvelle Iconographie de la Salpêtrière, 1906, xix, 417.

5. Fickler: Recherches expérimentelles sur l'anatomie de la dégénération traumatique et la régénération de la moelle épinère, Deutsch. Ztschr. f. Nervenheilk. 1905, xxix, 1.

THE EFFECTS OF WEATHER ON PAIN, COMFORT AND EFFICIENCY

It is not at all uncommon to hear that a patient feels well or ill parallel to changes of the weather. There is no doubt that barometric and above all hygrometric changes produce distinct and often marked variations in sensation. Probably no information, however, is more fallacious than the vague general impressions with regard to these effects of the weather that are supposed to be common knowledge. For instance, it is a shock to most persons to learn that though dark, rainy days are supposed to produce depression, and bright, sunny weather to lift clouds of despondency, suicides are most frequent in June and least frequent in December. Cold weather is supposed to be a great source of suffering and consequent depression, especially to the working classes, and yet the cold winter months have fewest suicides and the warm summer weather the most. It is not the extremes of heat, however, which produce the despondency and ill feeling that lead up to suicide, for the climax of the curve of suicides is not reached in July or in August, when people have become run down from the persistence of hot weather, but in the pleasant month of June.

Evidently careful study is needed in order to determine the exact effect of weather on the disposition and the feelings. A careful analysis of suicide statistics was made by Dexter,[1] who analyzed 2,000 cases of suicide in one American city. When studied in connection with the weather tables, the fact was revealed that "the clear dry days exhibit the greatest number of suicides, and the wet, partly cloudy days the least;

1. Dexter, Edwin: Suicide and the Weather, Pop. Sc. Month., April, 1901.

and with differences too great to be attributed to accident or chance. In fact, there are 31 per cent. more suicides on dry than on wet days, and 21 per cent. more on clear days than on days that are partly cloudy."

Dr. Ellsworth Huntington,[2] of the Department of Geography of Yale University, has called attention to the fact that there are some rather surprising results to be obtained from a study of efficiency in factories and in schools and colleges at different seasons of the year. The studies were made over a period of four years, and the plotted curves show that the lowest wages are earned during January; then there is a rather steady increase through February, March, April, May and the first half of June. During the latter part of June and through July and August, the curve remains at a lower level than in early June, but much higher than during the winter. About the end of August, people begin once more to work fast, and they go on at an increasing rate until the middle of November, when the rate begins to fall again. It recovers somewhat in December, owing evidently in part to the rush of holiday orders and in part to the extra incentive of the special need for money because of Christmas expenditures. Finally, at the end of that month, efficiency drops off rapidly to remain at its lowest all during January.

The chief differences between the curves for highest physical work and the maximum of mental effort, as illustrated by the class records of West Point and Annapolis, is that the fall maximum at West Point comes later than that of operatives and children, while the spring maximum comes earlier. At Annapolis the two maxima are pushed still closer together. "The two West Point maxima come more nearly in the winter than do the factory maxima, while the maxima at Annapolis are pushed still farther into the winter because the climate there is warmer than in Southern New York and Connecticut." The curves show that at very low temperatures, both mental and physical work are depressing. On days with higher temperatures, activity of both kinds increases, the increase being slight at first. Mental work reaches its highest point at a temperature of 38 F., while physical work reaches a maximum at 59 for men and 60 for girls. Above these temperatures for mental and physical work, the curves begin to fall.

There is a general impression that cold weather stimulates the circulation in human beings and arouses the activity of the nervous system, thus giving a greater capacity for work. This is true to a certain extent, but not for cold weather below the freezing point, in spite of persuasions to the contrary. The fall and the spring are the best working periods of the year for all kinds of work. A study of storms and their stimulating effect shows that change, especially rather sudden change of thermometric and barometric phenomena, are distinct stimulants. On the other hand, when the temperature remains more or less constant from day to day, people work and think more slowly.

As Dr. Huntington says, "We say bad things about our storms, we are loud in our defamation of the changeableness of the weather in the Eastern United States. In spite of this constant deprecation, every time that a storm passes over a region and is followed by cooler weather, peoples' efficiency is increased." We are inclined to think of an unvarying temperature as good for health and strength, but apparently it is not. Weather variations are distinctly good for us and for our efficiency.

2. Huntington, Ellsworth: Work and Weather, Harper's Month. Mag., January, 1915.

Current Comment

THE BLOOD-SERUM IN ALKAPTONURIA

Alkaptonuria is the symptom of a perversion of metabolism whereby some of the aromatic fragments of the protein molecule, notably tyrosin and phenylalanin, are no longer converted into the usual end products of amino-acid disintegrative change in the organism. The tendency of the urine to become very dark when in contact with the air is due to the presence of homogentisic acid, a compound bearing a very close structural relation to the two amino-acids mentioned above. The rare anomaly of nutrition attended by the continued excretion of homogentisic acid raised the question as to its unique origin and real significance. At one time it was believed that the aromatic compound represented a product of intestinal putrefactive change and that it had its origin in the alimentary canal. To-day, however, this explanation of the genesis of homogentisic acid has been abandoned in favor of the well-established theory that it represents an actual abnormality in the intermediary metabolism of protein. The facts are that the administration of tyrosin or phenylalanin, or of proteins (which yield these amino-acids) causes a marked increase in the output of homogentisic acid in the urine of alkaptonuric persons. Even on a protein-free dietary the characteristic excretion may continue, though in diminished amounts, the tissue proteins evidently being the sources of the urinary substance. Normal persons, on the other hand, readily and completely destroy these amino-acids and the homogentisic acid. If we may look on the homogentisic acid in persons presenting these unusual conditions as the product of the incomplete destruction of some of the amino-acid structural units of the proteins, the question at once suggests itself whether or not homogentisic acid ordinarily arises in normal intermediary metabolism. If it does, then the essential difference between the normal and abnormal (or alkaptonuric) individual would be that the latter is unable to complete the metabolic destruction of certain aromatic amino-acids which the normal organism readily breaks down to the simplest

final stages. The relation of the alkaptonuric to homogentisic acid or its precursors would thus present an analogy to the behavior of the diabetic toward sugar. Whether or not homogentisic acid really is an intermediary product in the normal metabolism of proteins and escapes detection because it is further decomposed as promptly as it arises cannot be definitely stated at present. There is some evidence that transitory alkaptonuria can be induced by excessive feeding of tyrosin.[1] If the hypothesis is tentatively adopted that homogentisic acid represents a normal stage in the metabolic disintegration, we at once become curious as to the place where it is normally broken down. Older experiments have shown that it can be made to disappear in its transit through the liver.[2] This by no means excludes the participation of other organs and of the blood itself. With respect to the latter fluid Oscar Gross of the medical clinic at Greifswald has furnished an interesting contribution.[3] Homogentisic acid is readily destroyed outside of the body by the blood-serum of normal persons. The serum of alkaptonurics, on the other hand, has no action whatever on it. Perhaps the key to the situation here and the explanation of the anomaly of alkaptonuria lies in the lack of an enzyme which ordinarily is present and competent to complete the metabolism of the intermediate product excreted in this unusual disease.

THE EMOTIONS AND ALIMENTATION

To experimental physiologists it is now a familiar fact that the peristaltic movements of the alimentary tract are easily inhibited by a variety of influences that may come into play in the every-day life of the human subject as well as the laboratory animal on which they have primarily been noted. The effect of the emotions on gastric peristalsis is not a new observation. Cannon, who has used the Roentgen ray, the most fruitful of all the technics applied in this field of study, long ago showed that rage, fright and anxiety abolish movements of the stomach. Other sensory stimuli bring about similar inhibitions of gastric peristalsis which can actually be observed in certain animals (rabbits) without any operative interference whatever, by mere inspection of the epigastrium as described by Auer.[4] The stoppage of intestinal peristalsis after similar inhibitory influences are brought to bear has been described for the human subject by various observers who used the Roentgen-ray method. If further evidence were needed to give emphasis to the profound dependence of the activity of the stomach, as regards both its secretory and motor functions, on the "condition" of the nervous system, additional proofs could easily be adduced. Quite recently a large number of facts have been gathered in the pharmacologic institute at Utrecht directly applicable to the question at issue.[5] They involve a careful record of the rate of discharge of bismuth meals from the stomachs of laboratory animals in various stages of psychic calmness or perturbation, but under otherwise comparable conditions. Without attempting to group the emotional states into well-defined categories, we may describe the subjects as ranging from individuals tame, unperturbed, readily amenable to handling and freely submissive to observation, on the one hand, to wild or frightened or refractory subjects at the other extreme. Corresponding with these emotional states the discharge of the meal from the stomach ranged in time from one and a half hours in the former group to three or even more hours in the case of the most unamenable subjects. Such figures are more expressive than a dozen sermons of the importance of a proper state of the nervous system in the normal performance of some of the functions of alimentation.

THE CULTIVATION OF TRYPANOSOMES

The development of suitable methods for the study of the growth of animal tissues outside of the body has encouraged much successful research in respect to the proliferation of various types of both normal and pathologic cells. It has made possible observations on developmental changes of such material as embryonic and tumor tissues and has pointed the way to the investigation of inhibitory as well as excitatory agencies. Fragments of neoplasms have been cultivated in glass apart from the organism which originally harbored them; and the mechanisms of their growth are thus being more clearly elucidated. By an adaptation of the devices used in this field, Dr. R. Erdmann[6] at Yale University has succeeded in following the development of certain important protozoa in a new way. Trypanosomes have, of course, been cultivated in the laboratory test tube in a variety of ways; but a satisfactory medium for culture on a slide has hitherto not been described. The value of such a scheme lies in the accuracy with which it enables the observer to study the sequence of changes in these microscopic organisms so as to reveal their true life history. By employing the plasma of the host as a culture medium either for the trypanosomes themselves or the growth in vitro of various infected tissues of the host, Dr. Erdmann has succeeded in keeping *Trypanosoma brucei* in normal condition for an indefinite period, whereas they die in a few days in other culture mediums. With the application of aseptic technic, the trypanosomes can be kept living, growing and dividing as they do in the host itself or in the transmitter. This promising method of investigating the complicated life cycles of protozoan forms which are parasitic alike in blood and in cells cannot fail to be an important contribution to the equipment for approaching the problems which they present.

1. Experimental Alkaptonuria, editorial, THE JOURNAL A. M. A., May 25, 1912, p. 1606.
2. Embden, Salomon and Schmidt: Beitr. z. chem. Phys. u. Path., 1906, viii, 152.
3. Gross, O.: Ueber den Einfluss des Blutserums des Normalen und des Alkaptonurikers auf Homogentisinsaure, Biochem. Ztschr., 1914, lxi, 165.
4. Auer, J.: Gastric Peristalsis in Rabbits under Normal and Some Experimental Conditions, Am. Jour. Physiol., 1907, xviii, 347; The Effect of Severing the Vagi or the Splanchnics or Both upon Gastric Motility, ibid., 1909-1910, xxv, 334.
5. Takahashi, M.: Die Abhängigkeit der Magenentleerung vom Allgemeinzustand des Nervensystems, Arch. f. d. ges. Physiol., 1914, clix, 389.
6. Erdmann, R.: A New Culture Medium for Protozoa, Proc. Soc. Exper. Biol. and Med., 1914, xii, 57.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Tuberculosis Recommendations.—The board of trustees of the Arkansas Tuberculosis Sanatorium, Booneville, have recommended to the legislature, an appropriation of $100,000 for the next biennium. Of this sum $85,000 is desired for maintenance and $10,000 for the much-needed cold storage and power plant.——The board also recommends an appropriation of $50,000 by the legislature for the erection and maintenance of a sanatorium for negroes to be established near the center of negro population, either south or east of Little Rock. Of the desired appropriation, $30,000 is for the erection of the buildings and $20,000 for maintenance during the next two years.

CALIFORNIA

Medical Library Association Organized.—On February 4, physicians of San Diego met and organized the Medical Library Association. The following officers were elected: president, Dr. Fred. R. Burnham; vice-president, Dr. Harry C. Loos; secretary, Dr. Robert Pollock, and treasurer, Dr. Alfred D. Long.

Personal.—Dr. George E. Ebright, San Francisco, has been appointed president of the State Board of Health to succeed Dr. Martin Regensburger, term expired.——Dr. Benjamin F. Walker, Stockton, has returned after four months' service as surgeon in French field hospitals.——A banquet was given February 1, by the employees of the Health Department of Los Angeles in honor of the twentieth anniversary of the appointment of Dr. Luther M. Powers as health officer. Sixty employees of the department were present and a silver loving cup was given Dr. Powers by his fellow workers.——Dr. Harriett G. Probasco, Los Angeles, has been appointed physician at the Juvenile Hall.

ILLINOIS

Associate Staff Attendants Eliminated.—The efforts of the Chicago Medical Society to do away with the classification among the members of the attending staff of the Cook County Hospital have been successful. On February 19, the public service committee of the Cook County board adopted resolutions eliminating the classification of associate staff attendants.

Personal.—Dr. Henry B. Carriel, for fifteen years superintendent of the Jacksonville State Hospital, has resigned and Dr. Edward L. Hill, Red Bud, has been appointed.——Dr. Herbert H. Pillinger, Algonquin, who has been under treatment in a hospital in Elgin for an infected wound of the hand, has returned and resumed practice.——Dr. William A. Nason is reported to be ill at his home in Algonquin.

Hospital and Dispensary Notes.—The night warden of the Cook County Hospital announces that 100 beds are to be added to the tuberculosis ward at that institution.——Arrangements have been completed for the establishment of a free dispensary in connection with the Washington Street Commission, Springfield. Dr. Theodore J. Knudson, Springfield, is chairman of the special committee of the board.——Stakes for the administration building and eight other buildings of the State Epileptic Colony, Dixon, were set February 13.——The tuberculosis cottage and men's infirmary at the Watertown State Hospital are nearly completed. These two buildings and the nurses' dormitory are expected to be ready for occupancy early in the spring.

Report of the Edward Tuberculosis Sanatorium.—The annual report of Dr. Theodore B. Sachs, Chicago, medical director of the Edward Sanatorium at Naperville, shows that in 1914, 213 patients were admitted and 200 discharged, 186 of whom were classified as to results of the treatment. Of the total number of 186 cases the tuberculous process was arrested or "apparently" arrested in 62.3 per cent., became quiescent in 41.4 per cent., 20 per cent. were improved and 5.9 remained unimproved. During the eight years of the existence of the institution 1,162 patients were admitted and 1,073 discharged (a few were discharged a second time). Of these 103 stayed at the institution less than one month, while 91.4 per cent. of the patients remained an average of 19.2 weeks.

Chicago

Memorial to Head Nurse.—The alumni of St. Luke's Training School have launched the project of erecting a memorial training school and home to be known as the Margaret E. Johnstone Memorial, in memory of Miss Johnstone, for twelve years directress of the school, who died January 26.

Internists Organize.—The Chicago Society of Internal Medicine was recently organized with the following officers: president, Dr. James B. Herrick; vice-president, Dr. Robert B. Preble; secretary-treasurer, Dr. Charles A. Elliott, and executive committee, the president, secretary and Drs. Charles Spencer Williamson, Ernest E. Irons and Walter W. Hamburger.

Personal.—Dr. George G. Davis, who has been associate professor of surgery in the University of Manila, P. I., and assistant surgeon at the Mission Hospital, Canton, China, reached New York from England, February 15.——Dr. James H. Stowell has resigned as chief medical examiner of the North American Life Insurance Company, Chicago, and has been succeeded by Dr. Owen M. Knox.

Course in Surgery of the Natives of the Far and Farthest East.—A course of six lectures, illustrated, on so-called tropical surgery and borderline diseases, will be given at Rush Medical College during the spring quarter on Saturday afternoons at 3 o'clock, from April 3 to May 8, inclusive, by Dr. John R. McDill, Milwaukee, Wis., formerly professor of surgery, University of the Philippines, Manila. The lectures are free to the medical profession.

INDIANA

Good Work of School Nurses.—The work of three school nurses employed by the Indianapolis Board of Health, has given such good results that two more will be added. Since January 1 they have visited the homes of 1,279 children who have been excluded from school for various reasons.

Legislature Notes.—A bill compelling the attendance of the prosecutor at all insanity proceedings where the defendant has no representative, has been passed in the house of representatives. It is designed to prevent the railroading of people to the insane asylum.——The house of representatives has finally defeated the bill to establish a state board of chiropractic examiners. During the hard fight on this bill it was shown that during the last ten years only ten osteopathic physicians have been licensed in Indiana.

Open-Air Schools.—Reports on the open-air school for tuberculous children in Indianapolis have been so encouraging that the municipal school board has adopted a resolution that whenever the parents of forty children in two consecutive grades in any school district signify their wishes to have an open-air school started, the school board will provide the same.

KANSAS

Small-Pox Still Prevalent.—In Columbus over 100 cases of small-pox had been reported up to January 13. The mildness of the majority of cases makes the situation difficult to deal with, since many patients are not ill enough to recognize the need for medical treatment.

Districting of State.—A bill introduced in the house by Representative Bardwell provides for the apportionment of the state into thirty districts in proportion to population and assessed valuations, the organization in each district of a board of health and the appointment of a whole-time health officer.

Dispensary Opened.—The Associated Charities of Kansas City, Kan., have opened a free dispensary for the treatment of diseases of the eye, ear and throat, every afternoon from 12 to 2; for general medicine on Tuesday, Thursday and Saturday afternoons, and diseases of children on Monday, Wednesday and Friday afternoons.

Personal.—Dr. Walter S. Sutton, Rosedale, sailed for Europe, February 13, to take service in the hospital established by Mrs. Whitney.——Dr. Gilbert C. McCormick, Wichita, is serving with the American Ambulance in Paris.——Dr. Lucullus R. Sellers, Osawatomie, succeeded Dr. Benjamin F. Hawk, Harper, as superintendent of the Larned State Hospital.

KENTUCKY

State Health Board Officers.—At the January meeting of the State Board of Health held in Louisville, January 15, Dr.

W. Lucien Heizer, Bowling Green, was elected state registrar of vital statistics, and Dr. Lillian H. South, Bowling Green, was reelected state bacteriologist, each for a term of four years.

Measures Against Trachoma.—Provisional arrangements have been made for the treatment of cases of trachoma in Jefferson County (of which nearly one hundred have been found in the schools) in the local hospitals of Lexington.——A conference and course of instruction for the health officials, physicians and midwives of Lexington and Fayette County for the study of methods for the prevention and treatment of trachoma and ophthalmia neonatorum was held at the Phoenix Hotel, Lexington, Dec. 2, 1914.——Cases of trachoma were found in the schools of Versailles in a recent examination by Dr. John McMullen, Baltimore, of the Public Health Service. The children have been kept out of the school and treatment instituted.

Hospital Notes.—The new Bethany Hospital, located in the Combs Building, Winchester, was formally dedicated February 10.——A vigorous campaign is being waged to raise $50,000 for the erection of a hospital in Winchester.——The new Red Cross Sanatorium for Negroes, Louisville, was opened for public inspection, February 12.——The contracts for the children's pavilion to be connected with the Waverly Hill Tuberculosis Sanatorium, have been let. The contracts call for an expenditure of $12,000 and the building will be completed this summer.——Dr. Leon L. Solomon, dean of the staff of the Jewish Hospital, Louisville, has donated a department for clinical research to the institution. Dr. Leon K. Baldauf, Louisville, has been elected director of the new department.

Personal.—Dr. Dalferes P. Curry, St. Charles, has succeeded Dr. E. H. Mark, Bowling Green, as state sanitary engineer, with headquarters at Bowling Green.——Dr. J. F. Reynolds, Mt. Sterling, was thrown from his horse recently and suffered a comminuted fracture of the arm.——Dr. Delia Caldwell, Paducah, who has been seriously ill with pneumonia, is reported to be convalescent.——Dr. Fred. H. Johanbocke, Louisville, has been appointed state medical supervisor of Kentucky of the Royal Arcanum, succeeding Dr. E. R. Montgomery, Louisville, resigned.——Dr. T. M. Owen of the Federal Bureau of Animal Industry, who has had charge of the work for the eradication of foot-and-mouth disease with headquarters in Louisville, has been assigned to Norfolk, Va., where he will take charge of the work for the eradication of cattle-tick, in Virginia and North Carolina. He will be succeeded in Kentucky by Dr. A. J. Payne.——Dr. Jesse I. Whittenberg, Louisville, has been appointed county health officer of Jefferson County.

LOUISIANA

Clinic Building.—A clinic building is to be erected at a cost of $20,000 by the board of directors of the Presbyterian Hospital on a site acquired last year on Girod Street, New Orleans.

Tulane Medical Privileges Given to Women.—The board of administrators of Tulane University, at a recent meeting, adopted the recommendations of the medical faculty and granted all the privileges of the medical college to women students.

Tuberculosis Camp Deeds Delivered.—The deeds for 640 acres of land near Alexandria were delivered to Dr. Oscar Dowling, president of the State Board of Health, January 7. On this site, which is on a high bluff overlooking the Red River, the new State Tuberculosis Sanatorium, for which $10,000 has already been appropriated, will be erected.

Improvements in State Hospital.—Dr. Clarence Pierson, superintendent of the Louisiana Insane Asylum, Jackson, reports that during the year, $254,000 was spent in maintenance, new buildings and equipment. Five new buildings are in course of construction. During the year, 310 patients were admitted and the institution was administered at a cost per capita of 43 cents per day.

New District Society.—The Fifth District Medical Society was organized in Monroe, January 20, by Dr. Oswald W. Cosby, Monroe, and the following officers were elected: president, Dr. George W. Gaines, Tallulah; vice-presidents, Drs. Vern J. Funderburk, Monroe; Dix H. Alverson, Newellton, and William S. Rutledge, Ruston; and secretary-treasurer, Dr. James B. Vaughan, Collinston.

Personal.—Dr. Grover C. McKinney, Lake Charles, hookworm specialist of the State Board of Health, has been elected full-time physician of Calcasieu Parish.——Fire in Morgan City, January 20, destroyed the office and library of Dr. Charles C. deGravelles.——Dr. Sidney D. Porter, New Orleans, has been appointed secretary of the State Board of Health.——Dr. J. George Dempsey, New Orleans, has been elected president; Dr. George S. Brown, vice-president; Dr. G. Farrar Patton, secretary, and Dr. Everard W. Mahler, treasurer, all of New Orleans, of the Louisiana Antituberculosis League.

MARYLAND

Personal.—Dr. Karl Van Norden, formerly in the research department of Johns Hopkins Hospital and who has been an officer in the German army since the beginning of the war, was seriously wounded at the battle of Lodz but according to word just received has fully recovered and will return to the front at once.——Dr. Henry Deibel, Baltimore, was rendered unconscious in an automobile accident recently. His car was jolted from its course by running over a dog and crashed into a tree, throwing the doctor to the roadway. He is suffering severely from shock and bruises.——Dr. Arthur P. Herring, secretary of the state lunacy commission, has returned from South Carolina where he went at the request of the state authorities to investigate the conditions at the Columbia State Hospital.

Effect of Harrison Act.—The effect of the Harrison Drug Act, which becomes a law, March 1, is already being felt in the office of the supervisors of city charities, Baltimore. Many persons who will be unable to get narcotics from druggists and others, in anticipation of a rigid enforcement of the new law, have appealed to the supervisors for relief. Some pitiful cases have been recorded in the last few days. It is giving the supervisors considerable trouble to determine what to do with these persons, for none of the hospitals will take them. Those in charge at the Phipps Psychiatric Clinic have agreed to cooperate with the supervisors as far as possible. Those who cannot be treated at the clinic, will be sent back to the supervisors and it probably means that a ward at Bay View Asylum will have to be opened for such cases.

MINNESOTA

Hospital Addition Opened.—A four-story addition to the Swedish Hospital, Minneapolis, was formally opened February 9; the new addition will accommodate 52 patients.

Personal.—Dr. Howard Lankester, St. Paul, has recovered from his recent illness.——Dr. Frederick H. Buck, Shakopee, is reported to be seriously ill with scarlet fever.——Dr. R. L. Burns, Soudan, has completed negotiations to take over the Budd Hospital, Two Harbors.

Measles in the Agricultural School.—Under date of February 10, an epidemic of 28 cases of measles was reported among the students of the Agricultural School of the University of Minnesota, at Anthony Park. This epidemic again emphasizes the necessity of an isolation hospital on the university grounds and a special health officer for the university district, both of which have been asked for heretofore. Many of the students live outside the campus in private homes, and as hundreds of them were exposed to the contagion the possibilities of spread of the disease among the pupils of the city schools of Minneapolis and St. Paul are great.

Cost of Small-pox and Vaccination.—The State Board of Health reports that vaccination at public expense costs about 25 cents a person, while small-pox costs the public on an average about $50 per case. On this basis it is estimated that Minnesota's loss in 1913 and 1914 on account of small-pox was $233,000, or $100,000 more than the total health appropriation for the two years. Only about 1 per cent. of persons having small-pox in 1913 and 1914 had been successfully vaccinated within seven years; 6 per cent. had been vaccinated more than seven years previously. The disease in these persons was mild. All deaths and all severe cases occurred among the 93 per cent. of persons afflicted who had never been vaccinated.

NEBRASKA

Personal.—Dr. Marie H. Morse, Wisner, was seriously injured at Fremont, January 28.——Dr. Joseph S. Leisure, formerly of Clay Center, has been appointed a member of the staff of the Hastings State Hospital.——Dr. Tenny T. Harris has been reappointed chief of police surgeons of Omaha.——Dr. Porter F. Dodson, Wilber, was elected president of the board of secretaries of the State Board of Health, January 12.

NEW YORK

State Medical Society Meeting.—The one hundred and ninth annual meeting of the Medical Society of the State of New York will be held in Buffalo, April 27 to 29. The place of meeting will be the Sixty-Fifth Regiment Armory and on the last day of the meeting a regimental parade will be held, with review by Surgeon-General Gorgas, U. S. Army.

Superintendent of Supervisors Appointed.—Dr. Fred M. Meader, Syracuse, former city bacteriologist, has been appointed by State Health Commissioner Herman M. Biggs as superintendent of sanitary supervisors of the state. Dr. Meader will make regular visits to the various sanitary districts and will also be ready to answer emergency calls from any sanitary supervisor at any time.

Advise Closer Watch on Cattle.—The special commission, composed of Seth Low, Calvin J. Huson and Dr. Linsey R. Williams, deputy commissioner of health of the state of New York, appointed to investigate conditions among cattle, has submitted its report to Governor Whitman, in which it urges closer inspection of cattle, a general and frequent investigation of slaughter houses and the pasteurization of skimmed milk. The report holds that as many tuberculous cattle are slaughtered annually and made into sausage, which is liable to be eaten without cooking, farmers should be indemnified for cattle slaughtered by the state.

Ask Investigation of Private Institutions.—The legislative committee appointed two years ago to investigate the proposed taxation of Bloomingdale Insane Asylum in White Plains, has been submitted to the legislature. This report finds that the institution in question is conducted as a business proposition though some needy patients are treated free of charge, and it is on this latter fact that the institution has been free from taxation. The report recommends the appointment of a commission to investigate the feasibility of taxing all such institutions. It is estimated that the value of these institutions in the state is $10,000,000.

Hearing on Vaccination Bill.—February 10 a joint meeting of the House and Senate was held at Albany to hear arguments for and against the Jones-Tallett bill to limit compulsory vaccination of schoolchildren to communities in which epidemics exist. Among those heard were State Health Commissioner Hermann M. Biggs, New York, and Thomas E. Finnegan, deputy commissioner of education. Dr. Biggs is said to favor compulsory vaccination in first- and second-class cities, but not elsewhere. He thoroughly believes in the efficacy of vaccination. Dr. Finnegan said the present law requiring vaccination of all schoolchildren regardless of the presence of epidemics was difficult to enforce, and he favored the Jones-Tallett bill. Among those who spoke in favor of compulsory vaccination were Dr. Abraham Jacobi, New York City; Dr. Jay F. Schamberg, Philadelphia, and Dr. Franklin C. Gram, Buffalo. A number of laymen opposed compulsory vaccination unless it applied to all members of the community, or objected to it altogether.

Report on Feeble-Minded.—The State Commission to Investigate Provision for Mental Deficients, consisting of Robert W. Hebberd, secretary of the State Board of Charities; Dr. Max G. Schlapp, New York City, and others, which has been at work since last August, has submitted its report to the legislature. The findings are embodied in five conclusions with recommendations. These show the large number of defectives in the state, the lack of facilities for caring for them, the inadvisability of trying to deal with this class of individuals under the reformatory system, or in institutions for the insane, and set forth a plan for their care which seems somewhat ambitious. In the opinion of the committee, the problem is one which must be solved by the state, and the sooner such plans as suggested are carried out the more economical it will be for the state. It is especially urged that facilities for vocational training of the mentally defective pupils in the public schools should be greatly improved and extended and that there should be a better system of supervision than at present exists over the mentally deficient pupils.

Urge United States Control of Quarantine.—The Committee on Public Health of the New York Academy of Medicine has sent a letter to Governor Mitchell enclosing the report of its special study on the advantages that would accrue to the public generally and to this state in particular by placing the New York quarantine station under federal instead of state control. The report gives as reasons for urging this change: first, because of the international character of modern commerce the tendency of the last fifty years has been from provincial regulations to uniform national and international rules and laws; second, there are only two ports in the country whose quarantine stations are managed by local and state authorities; third, the United States, in order to be a responsible party to national agreement, must have control of all the ports of the country. The report further points out that as quarantine work is essentially scientific in its nature, it cannot be carried on efficiently unless the tenure of office is independent of changes in administration and politics. As the term of office of the present health officer expires this month, it is suggested that it would be an appropriate time for the government to transfer this work to the federal government. It is also shown that in 1913 and 1914 it cost $96,080 and $91,900, respectively, more to maintain the station than the revenue derived from it.

New York City

Personal.—Dr. Henry H. M. Lyle of St. Luke's Hospital sailed for France, February 10, to assume charge of the American Base Hospital, established and equipped by Mrs. Payne Whitney.

Money Saved by Health Department.—Dr. Sigismund S. Goldwater, health commissioner of New York City, has turned back to the municipal treasury more than $170,000 as the unexpended balance of its appropriation for the year.

Bar Dogs from Food Shops.—The Health Department has put into effect an ordinance forbidding the bringing of dogs into all stores where groceries, meat, fruit and other foods are displayed for sale. Signs directing attention to this ordinance have been displayed in all such shops.

Newspaper Attack on the Milk Commission and Dr. Park.—The New York *Globe* of February 11 contained an article by Alfred McCann, the exponent of the *Globe's* pure food campaign, describing the certified milk industry as conducted by the milk commission of the Medical Society of the County of New York and characterizing Dr. William H. Park as a "farce" and the cows "rotten." On the same evening at the meeting of the pediatric section of the New York Academy of Medicine, the chairman, Dr. Walter Lester Carr, spoke of the work of the milk commission which had been taken as a model after which milk campaigns for pure milk had been patterned in many cities all over the civilized world, and called on Dr. Park to explain the basis of Mr. McCann's amazing statements. Dr. Park stated that the accusations made against the veterinarian who had been making the test were absolutely false. Dr. Park said that as a matter of fact their tests have shown that 9 per cent. of all cows brought to the certified herds are tuberculous, whereas only 3 per cent. of cows in these regularly inspected herds have been found to be infected. Hitherto the tests have been continued over eighteen hours, but as a result of the facts they had gathered in regard to late reactions, such tests would hereafter be continued over twenty-four hours and would be made twice a year. Dr. Park stated that it had never been claimed that the certified milk was absolutely perfect, but they had used every precaution which was possible with the working force and funds at their command. It was also pointed out that with so large a proportion of the city milk supply pasteurized it was important to have a small supply of pure raw milk available. It was the general opinion that not only was the unwarranted attack on the work of the milk commission which has been purely philanthropic, to be deplored, but that the attempt to destroy public confidence in a work which has only the public welfare in view was most reprehensible.

OHIO

Sanatorium Capacity Increased.—The board of trustees of the Springfield Lake Sanatorium, recently opened by Stark, Portage, Columbiana, Mahoning and Summit counties, has added six beds to each of the public wards in the institution, thereby increasing the capacity from 72 to 96. There are at present 53 patients in the institution and 12 applications are on file.

Personal.—Dr. Ralph B. Thompson, National Military Home, was promoted February 20, and transferred to the Eddy Road Hospital, Cleveland.——Lieut. Earl B. Downer, M. C., Ohio N. G., Columbus, has been appointed staff surgeon for the American Red Cross and detailed to work in Servia.——Drs. Angus MacIver, Marysville, and J. Morton Howell, Dayton, have been appointed members of the State Board of Health.

Hospital for Criminal Insane Opened.—The Ohio State Hospital for the Criminal Insane, Lima, erected at a cost of

$2,000,000 was officially opened February 15. The superintendent, Dr. Charles H. Clark, estimates that about 600 patients will be housed in the new institution within the first four months. Dr. Clark is endeavoring to have the appropriation of $88,609.75 for the hospital the next four and one-half months, increased to the original estimate of $106,000.

Cincinnati

Personal.—Dr. Christian R. Holmes was reappointed a member of the board of hospital commission, January 26. Dr. Holmes returned from New York, February 12, after conferring with Eastern scientists regarding the new hospital.——Dr. H. Kennon Dunham has been reelected president of the Cincinnati Antituberculosis League.

Cincinnati General Hospital Opened.—On February 20 the new Cincinnati General Hospital, which took four years to build at a cost of approximately $4,000,000, was formally transferred by the commissioners who supervised its building to the municipal authorities. The formal act of transfer was completed when Dr. Christian R. Holmes, chairman of the commission, gave to the mayor two golden keys with which to unlock the doors of the various buildings. Addresses were made by Dr. Holmes, the mayor, Frederick Spiegel, and Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching. Following the exercises a reception was held. In the evening a dinner was given by the chamber of commerce to the board of hospital commissioners, and this was a personal ovation to Dr. Holmes, who had done so much to make the building of the hospital a great success. Addresses were made by W. B. Melish, toastmaster, Henry S. Pritchett, Thomas C. Powell, Mayor Frederick Spiegel, Dr. Christian R. Holmes, Dr. Samuel J. Mixter of the Massachusetts General Hospital and Dr. Benjamin K. Rachford, resident of the hospital staff. Dr. Rachford paid a tribute to the medical profession of Cincinnati, which has upheld so splendidly the work of Dr. Holmes and his associates. Just before the close of the banquet, an announcement was made that may have a most important influence on the future of medical Cincinnati: Mr. Harry M. Levi stated that he will give $50,000 toward the establishment of a medical school in connection with the new hospital.

PENNSYLVANIA

Personal.—Dr. Lewis N. Reichard, Brownsville, who was operated on recently in Pittsburgh for appendicitis, has returned home.——Dr. Frank B. Witmer, Lebanon, was operated on at the Good Samaritan Hospital recently.——Dr. Thomas B. Hill, Waynesburg, was thrown from his horse, February 10, fracturing his clavicle.

Amendment Proposed to Anticigarette Law.—The act of 1913 provides a fine of not less than $100 and not more than $300. The amendment reduces the fine to not less than $5 and not more than $25, but the force of the new bill is that it will enable the crusaders to bring quick action against violators since it authorizes prosecution before any alderman, magistrate or justice of the peace. The Children's Aid Society, the Society for the Protection of Children from Cruelty, the Court Aid Society, and the officials and probation officers of the juvenile court are very much interested in the bill.

Osteopathic Standing Attacked.—The attorney general has received petitions to revoke the licenses of 161 osteopathic physicians practicing in various parts of the state and including that of O. J. Snyder, president of the State Board of Osteopathic Examiners. The reason given in the petition is "that the physicians are graduates of and hold diplomas from and degrees conferred by the Philadelphia College or Infirmary of Osteopathy, which institution, the petitioners aver, has never had the right to conduct such a college or to grant diplomas and confer degrees, and that therefore these physicians were never legally licensed, as applicants for license are required by the law to have a diploma from a legally incorporated college before they can be licensed to practice in this state." The petition relating to Snyder is based on the ground that the Northern Institute of Osteopathy of Minneapolis, from which he is alleged to have graduated in 1909, and "which it is also alleged has long since ceased to exist," was not a legally incorporated college within the meaning of the law.

Philadelphia

Med-Chi Alumni Meet.—At the annual meeting of the Medico-Chirurgical Alumni Association, the following officers were elected: president, Dr. Arthur C. Morgan; vice-presidents, Drs. Daniel J. Monihan, Chester; Frederick E. Ward, Easton, and Frank Sheppard; secretary, Dr. Erwin H. Erney, and treasurer, Dr. John A. Brophy.

Higher Entrance Requirements.—For the 1915-1916 term the Woman's Medical College of Pennsylvania, Philadelphia, asks the following requirements for admission: Candidates must have successfully completed work equivalent to that prescribed for the freshman and sophomore classes in recognized colleges. This must include collegiate courses in physics, general biology or zoology and chemistry (qualitative analysis is required; organic chemistry is recommended), together with appropriate laboratory exercises in each of these subjects, and two languages other than English (one of which must be French or German).

Medical Institutions About Philadelphia.—Mercy Hospital will shortly move to its new site on Twenty-Second Street below Reed. This hospital conducted for negroes by members of that race has been located on Fitzwater Street for the last eight years. A hospital building at 1413 and 1417 South Twenty-Second Street and a school for nurses is to include four stories, stone, brick and terra cotta, 32x110 feet, and to cost about $50,000, is provided in the architect plans. The new hospital will be a feeder for a convalescent sanatorium to be located just outside of the northwestern city limits.——The National Stomach Hospital, Fifteenth Street above Jefferson, an institution for the investigation and treatment of digestive disorders, was opened formally, February 9. The funds for the building of the hospital were subscribed by those interested in that branch of medicine.

SOUTH CAROLINA

Typhoid Prophylaxis.—The laboratory department of the State Board of Health, under the supervision of Dr. F. Asbury Coward, Columbia, prepared more than 40,000 doses of antityphoid serum during the past year, of which more than 39,000 were sent to physicians.

Personal.—Dr. James L. Napier, Blenheim, celebrated his seventieth birthday anniversary recently with an elaborate dinner to his professional confrères and friends.——Dr. Julius H. Taylor, Columbia, announces that henceforth he will devote his entire time to general surgery.

Hospital Notes.—The secretary of state has issued a commission to the Lee County Hospital Association at Bishopville, with a capital stock of $2,000.——The tuberculosis ward at the State Park Colony has been completed, and the administration building branch is almost ready for occupancy.

New Head of Government Pellagra Hospital.—P. A. Surgeon R. A. Herring, U. S. Public Health Service, who has been in charge of the government hospital for pellagra in Spartanburg since the opening of the hospital a year ago, has been transferred to New Orleans. P. A. Surgeon Randolph M. Grimm of the service has succeeded him. Dr. Grimm formerly spent considerable time in the study of pellagra in South Carolina, and was stationed for a time at Savannah, Ga.

Reorganization Approved.—As the result of the special investigation made by Dr. Arthur P. Herring, Baltimore, secretary of the State Lunacy Commission, dealing with the State Hospital for the Insane, Columbia, the following improvements in the institution are recommended: first, that the superintendent shall be appointed by the Board of Regents and not by the governor, and shall be removed only for cause and after hearing; second, that the Board of Regents shall consist of five members appointed by the governor with the sanction of the senate, shall be appointed for an ultimate term of six years and that they shall not be removed without cause and after hearing; third, that the superintendent shall make all appointments with the sanction of the Board of Regents and shall have power of administration subject to the approval of the board; fourth, that all regulations of the hospital shall be formulated by the board and executed by the superintendent and his assistants; fifth, that the name of the institution be changed from "State Hospital for the Insane" to "Columbia State Hospital"; and that the hospital for negroes shall be known as the "State Park Colony"; sixth, providing for voluntary dismissal; seventh, providing for a fiscal agent whose duty will be to see that patients who have relatives responsible for their support be made to reimburse the state; eighth, that no female patient be admitted to the hospital unless accompanied by a relative, a friend or nurse of the same sex; ninth, providing for a system of after-care of patients who are able to leave the institution although not fully recovered; and tenth, providing

for the admittance, care and treatment of inebriates.——At a special meeting of the Medical Society of South Carolina, February 8, resolutions were adopted endorsing the efforts of Governor Manning toward improving conditions at the State Hospital and approving the proposed plans for reorganization.

SOUTH DAKOTA

Court Upholds Health Officer.—In a mandamus proceeding brought by a citizen of Sioux Falls against Dr. William F. Keller, city health officer, to compel him to provide accommodations for the treatment of a case of small-pox in a domestic servant other than in the home of the citizen, Judge J. W. Jones in the circuit court upheld the city health officer. It has been customary in Sioux Falls to remove patients with infectious diseases such as small-pox to tents in the summer, but in cold weather they have been treated in the houses in which the disease occurs. The city has no pest house or detention hospital.

WEST VIRGINIA

Personal.—Dr. Abraham S. Warder, Jr., Grafton, who has been confined to his home since Christmas as the result of a fall on the ice, is convalescent and has resumed practice.

Hospital Assured.—A ten-day campaign to raise $250,000 for the institution in behalf of the Ohio Valley General Hospital, Wheeling, has resulted in securing $254,493.31. The entire cost to the association of the subscription was little more than 2 per cent. The present debt of the association, including interest, is about $285,000, and it has an endowment fund of about $80,000.

WISCONSIN

Sanatorium Site Approved.—The Wisconsin State Board of Control has formally sanctioned the purchase of the Jeffrey Farm in Summer Township, as the site for the Kenosha County Tuberculosis Sanatorium.

Personal.—Dr. Edward J. Barrett, Sheboygan, has been elected a member of the executive committee of the Sheboygan Tuberculosis Society.——Health Commissioner George C. Ruhland, Milwaukee, who has been ill for several days, has recovered and resumed work.

Monthly Bulletin to be Issued.—A bulletin is to be issued monthly by the Milwaukee Health Department in place of the *Healthologist*, the publication of which has been discontinued. Much of the space of the bulletin is to be devoted to the explanation of new health measures, advice and to a crusade against quackery and nostrums. The official title of the publication will be *"Bulletin of the Health Department."*

CANADA

Meningitis Epidemic.—Cerebrospinal meningitis has broken out among the Second Canadian Overseas Contingent, located in Toronto. Six cases and one death have been reported.

Isolation Hospitals Planned.—The Windsor Board of Health has asked the city council to appropriate funds for the erection of three isolation hospitals, one in each ward of the city.

Barker the Guest of Honor.—At the thirty-third annual dinner of the faculty of medicine of McGill University held in Montreal, February 13, Dr. Lewellys Franklin Barker of Baltimore was the guest of honor.

University News.—In the officers' training corps of the University of Toronto, 1,800 men are enrolled. The medical faculty supplied 450; science, 500, and dentistry, 160.——The University of Alberta has been admitted to affiliation with the University of Oxford, England. A student who has completed his course in the former may study in the latter without further examination.

Personal.—Medical Health Officer Theophilus V. Hutchinson, London, Ont., has resigned and it is proposed to give him an honorarium equalling his salary for three years.——Dr. James Stowers, Montreal, has accepted a position with the American Red Cross unit at Paignton, England.——Dr. Keith Dean, Carlyle, Sask., sailed for England, February 7, for work with the expeditionary force.——Dr. James Roberts, medical health officer of Hamilton, has been ordered to report for duty with the stationary hospital number 2, Canadian expeditionary force.——Dr. W. D. Cowan has been elected president of St. John's Ambulance Association, Regina, Sask.——Dr. Henry R. Parent has been elected chairman of the Board of Health of Ottawa.——Dr. T. M. Flock has been appointed superintendent of the Tuberculosis Hospital, Essex County, Ont.——Dr. H. Eaglesham, Weyburn, Sask., has been elected president of the College of Physicians and Surgeons of that province.——Dr. Gordon Gray has been appointed senior demonstrator in physiology in the University of Alberta, and Dr. L. C. Coon, demonstrator in anatomy.——Dr. George H. Wilson, London, Ont., has been appointed medical officer of the Seventh Regiment Canadian mounted rifles.——Dr. George C. Hale, London, Ont., has been commissioned medical officer of the Eighteenth Battalion for overseas service, and Dr. A. V. Becher, London, medical officer Thirty-Third Battalion.

GENERAL

Harvard Graduate Surgeon-General of China.—Dr. S. H. Chuan, a graduate of Harvard Medical School, 1899, and a specialist on sanitary and preventive medicine, has been appointed surgeon-general of the Chinese army, and president of the Army Medical School, Tien-tsin.

Sociologic Congress.—The fourth session of the Southern Sociological Congress will be held in Houston, Texas, May 11. The general theme of the program will be the conservation of health and will be divided into the following six departments: (1) the prevention of communicable diseases; (2) moral health; (3) the health of children; (4) mental health; (5) health and race relations, and (6) the church as the conserver of social health.

Medical College Association Election.—At the twenty-fifth annual meeting of the Association of American Medical Colleges held in Chicago, February 17, Chicago was selected as the place of meeting for 1916, and the following officers were elected: president, Dr. Charles R. Bardeen, Madison, Wis.; vice-president, Dr. Reuben Peterson, Ann Arbor, Mich.; secretary-treasurer, Dr. Fred C. Zapffe, Chicago, and councilors, Drs. F. C. Waite, Cleveland, and Samuel W. Lambert, New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York City, $7,500 for the endowment of a bed in memory of his wife and two daughters, by the will of James C. Fargo.

Franklin Square Hospital, Boston; Free Hospital for Children, Brooklyn; Industrial School for Crippled and Deformed Children, Boston; and Boston Children's Hospital, equal parts of the estate of George N. Dana, after the death of the widow and certain legatees.

Boston Floating Hospital; Industrial Home for Crippled and Deformed Children, Boston; bequests by the will of Ellen Baird, Boston, after payment of certain specified bequests.

Methodist Episcopal Hospital, Indianapolis, the residue of estate appraised at $100,000 by the will of John Messick, Shelbyville, Ind.

National Health Week.—Booker T. Washington, president of the National Negro Business League, has issued from the Tuskegee Institute a call to the people of his race throughout the country to observe a national health week from March 21 to 27. It is further suggested that each community have a clean-up committee to investigate conditions which menace the health of communities. The call is addressed to daily and weekly newspapers, medical and other organizations and to state health officers. He calls attention to the fact that there are 450,000 negroes in the South alone who are seriously ill all the time, the annual cost of whose illness is at least $75,000,000. He says that 112,000 negro workers in the South are ill all the time and their annual loss in earnings amounts to $45,000,000, and that 225,000 die annually, 100,000 of which deaths could be prevented.

National Committee for Mental Hygiene Meets.—At the seventh annual meeting of this organization, held February 15, it was announced that Mrs. William K. Vanderbilt had contributed $44,500 and Mrs. Elizabeth Milbank Anderson $40,000, to be used in the extension of the work of the National Committee of Mental Hygiene. It was also announced that the services of Dr. Thomas W. Salmon, New York, had been contributed for a number of years by the Rockefeller Foundation. The organization proposes to extend its work by organizing state societies for mental hygiene throughout the country. Already seven states have such organizations and in twenty more groups of persons are preparing to establish them. As a part of the campaign of education a quarterly magazine containing articles on mental hygiene, the prevention of insanity and the care and treatment of the insane, the feeble minded and alcohol and drug victims will be published. The following officers were elected for the ensuing year: president, Dr. Lewellys F. Barker, Baltimore; vice-presidents, Dr. Charles W. Eliot, Boston, and Dr. William H. Welch, Baltimore; treasurer, Otto T. Bannard; medical director, Dr. Thomas W. Salmon, New York, and secretary, Clifford W. Beers.

FOREIGN

Suspension of Italian Periodical.—The *Gazzetta Medica Italiana*, founded and edited by Prof. Senator Carlo Forlanini, has ceased publication.

Memorial to Miraglia.—A memorial tablet has been placed on the house at Cosenza, Italy, where the eminent alienist, B. Miraglia, was born, and a similar tablet is to be placed in the insane asylum at Aversa, the scene of his work, and a street in Aversa is to be named after him.

Italy Places More Restrictions on the Liquor Trade.—Last month the new regulations went into force in Italy prohibiting the sale of liquor, even wine or beer (except at meals), to minors under 16, to drunken persons, to feeble persons and to those with mental derangement. The sale of liquor is also strictly prohibited on holidays and election days. Stringent regulations in regard to licensing of saloons also come into force, and the sale, manufacture or importation of absinthe is absolutely forbidden.

Deaths in Profession Abroad.—L. Loewe, a specialist at Berlin in diseases of the ear, nose and throat, and author of several large works on these subjects, aged 71.——M. Höfler, a leading balneologist and student of medical history, especially folklore and medical nomenclature, recently succumbed at Tölz in Bavaria to cancer of the liver, aged 66.——H. Schiess-Gemuseus, long professor of ophthalmology at the University of Basel, where he organized the first eye clinic and wrote many articles on the eye for various scientific periodicals, died recently, aged 82. He retired from his chair at the age of 60, and ten years later lost the sight of one eye from detachment of the retina, soon followed by total blindness from a cataract of the other eye.——L. Pastro of Venice, senator of the realm, died January 22, at an advanced age.——A. Marcacci, professor of physiology at the University of Pavia, author of numerous works on physiology.——The names and addresses of eight physicians who lost their lives in the recent earthquake in Italy, are given in the latest *Policlinico*.

WAR NOTES

Personal.—Dr. Charles S. Pancoast, Camden, N. J., is now connected with the American Red Cross Hospital unit at Budapest, Hungary.——Dr. McDonald, chief surgeon of the American Red Cross Hospital at Budapest, with Surgeons Jewitt and Miller and one nurse connected with the staff, has had conferred on him by the Archduke Francis of Austria the Red Cross badge of honor, second class.

Auto Ambulance Service.—The American Ambulance Hospital, in Paris, has now nearly ninety ambulances in service, most of them at the front. The statistics show that the mortality in the American Hospital has been less than 8 per cent, and that up to January 31, the hospital had received $440,000, of which $120,000 was contributed by Americans in Europe. There are at present 398 patients in the hospital, and the average cost per patient per day is $1.50. The cost of the maintenance of an ambulance is about $200 a month.

Transfer of Wounded in France.—Twenty-seven ambulance trains are in operation in the north of France, but the evacuation of the wounded is much hampered on account of the troop and ammunition trains which are given the right of way. It is reported that 36,000 wounded have passed through Limoges, and that in one night 800 wounded arrived and that there were only three ambulances to handle them, and that the blanket supply was exhausted. At Havre, 4,000 wounded were expected, and 8,000 arrived, in addition to many German prisoners.

More Nurses for War Work.—Ten additional Red Cross nurses sailed for France on the *Rochambeau*, February 20. Of these, nine are to be sent to Yvetot, and one, the head nurse of the department of surgery of the Rockefeller Institution for Medical Research, goes to Paris to assist Dr. Alexis Carrel, who has been detached from the Lyons Hospital and has been assigned to the hospital at Compiegne near the northern battle line. This hospital will accommodate about 100 patients, and is being equipped by the Rockefeller Institute with complete apparatus for research in bacteriologic, pathologic and chemical and surgical conditions which may arise, with especial reference to the study of infected wounds.

Good Work of the Servian Red Cross Unit.—Dr. Edward W. Ryan, surgeon-director of the American Red Cross unit, located at Belgrade, reports that at the time of the Austrian occupancy of Belgrade he was left in charge of all the hospitals in the city. At one time he and his assistants had 3,000 patients in their care with frozen hands and feet. A large number of these wounded had had not even first dressings and many of the wounds were infected. Under Dr. Ryan's charge were five hospitals with about forty buildings, nine Servian physicians, 150 nurses and about 1,200 patients and also the insane hospital and civil, surgical and medical hospitals. In addition to this, Dr. Ryan had to provide food for about 6,000 poor. Before the Servians retook Belgrade 6,000 wounded passed through the hands of the Red Cross Hospital, and as it was impossible to handle these cases, they were sent into the interior of Hungary with the exception of about 750, who were retained in Belgrade.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ended Feb. 20, 1915, shows the following contributions:

Dr. Sylvester J. McNamara, Brooklyn, N. Y.	$ 5.00
Dr. Junsai Watanabe, Seattle, Wash.	5.00
Anonymous — B., Pittsburgh, Pa.	30.00
The Erie County Medical Society, Erie, Pa.	25.00
Dr. Hugh Cabot, Boston, Mass.	25.00
Dr. Edward Evans, LaCrosse, Wis.	10.00
Dr. Willet J. Herrington, Bad Axe, Mich.	10.00
Otero County Medical Society, La Junta, Colo.	25.00
Vermilion County Medical Society, Danville, Ill.	25.00
Dr. Eva Charlotte Reid, Talmage, San Francisco, Cal.	5.00
Dr. Howard Carter, Webster Groves, Mo.	5.00
Dr. George H. Torney, Brookline, Mass.	5.00
Dr. John B. Murphy, Chicago, Ill.	100.00
Dr. Donald E. McGillivray, Port Angeles, Wash.	5.00
Dr. Charles N. Spratt, Minneapolis, Minn.	100.00
Dr. John M. Thorne, Pittsburgh, Pa.	5.00
Westerly Physicians' Association, Westerly, R. I.	10.00
Dr. J. P. Long, Astoria, Chicago, Ill.	1.00
Dr. Roy Sexton, Streator, Ill.	5.00
Dr. Delos E. Cornwall, St. Maries, Idaho	5.00
Aesculapian Club of Buffalo, Buffalo, N. Y.	25.00
Pocatello Medical Society, Pocatello, Idaho	10.00
Dr. Arthur R. Thomas, West Eaton, N. Y.	5.00
Receipts for week ending Feb. 20	$ 446.00
Previously reported receipts	$3,133.00
Total receipts	$3,579.00
Previously reported disbursements	$3,135.00
Disbursements week ending Feb. 20, 200 boxes food at $2.20 per box	$ 440.00
Total disbursements	$3,575.00 3,575.00
Balance	$ 4.00

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Building, Pittsburgh, Pa.

LONDON LETTER

LONDON, Feb. 5, 1915.

The War

GIFTS OF CLOTHES FOR THE SOLDIERS

A needlework guild, founded by the queen on the outbreak of the war, has sent to the front an enormous amount of warm clothing in the form of knitted garments. Just before Christmas there was a special collection of knitted woolen socks and belts to the number of 970,000 from all parts of the empire, from every continent, from the United States, and from every country where English is spoken gifts of clothes have been sent. In five months no fewer than 789,562 garments have been received.

BOULOGNE UNDER THE RED CROSS

The French seaport and watering place has undergone an extraordinary transformation. It is now what may be termed a hospital town for the British wounded. All the principal hotels are turned into hospitals or lodge the officials of the British Red Cross Society. At the railway station the goods sheds have been converted into an enormous military hospital. The work has been so well done that dismal uninhabitable buildings have been changed into a series of spotlessly clean, bright wards, well lighted, warm and ventilated. There is even a specially equipped ward for pneumonia cases, and two thoroughly up-to-date operating theaters. The Casino has also been converted into a hospital. The Café restaurant makes a fine ward, containing over ninety beds, and at the "bar" medicines are now dispensed. The finest ward of all is the great Baccarat Hall. The cashier's office is now a sisters' room, and the "American bar" a Roentgen-ray room. Never have the British wounded, or probably any wounded, been so well looked after. The hospitals are as well staffed as they are equipped. Eminent consulting physicians attached to the army visit daily to advise on medical cases of difficulty, and a still greater number of eminent surgeons attend, and no major operation is performed without the approval of one of them. There are also specialists as well as operating surgeons who are celebrated for particular work. The transport is equally good. The Red Cross Society has some nine hundred motor

ambulances on the roads of France. They are at every point of the lines of communication and at every base, and are ready at any hour of the day or night. There is also now an adequate number of ambulance trains on the lines of communication, and the latter types embody the newest refinements in hospital-train construction.

GERMAN PRISONERS IN ENGLAND

A Danish gentleman, Mr. A. Goudsmit, has visited four of the German camps for prisoners in England and reports that the treatment of the prisoners is "splendid." The officers in charge do their best to make the lot of the prisoners as tolerable as possible. The food is excellent and arrangements are made for the men to have regular exercise. Mr. Goudsmit is about to return to Germany with the object of procuring the release of every British non-combatant and the exchange of crippled military prisoners. The British government has now completed, for the internment of some two or three hundred German officers, Donington Park, Leicestershire, the property of Mr. Frederick Gretton. They have spent $100,000 in adapting the place for the purpose. The well-wooded park comprises about 400 acres, but only 20 acres immediately adjoining the hall will be used by the prisoners, this space being enclosed by barbed-wire entanglements, 8 feet high, 6 feet wide, and let into the ground to a distance of 3 feet. Additional dormitories built of wood have had to be erected a few yards from the hall, for some of the prisoners and for the guard.

THE MANUFACTURE OF SYNTHETIC DRUGS

Before the war we were almost entirely dependent on Germany for synthetic drugs and the stocks in this country were not sufficient. Consequently, these drugs have become scarce and expensive. Progress, however, has been made in their manufacture. A license to manufacture salvarsan has been obtained by one firm. At the request of the admiralty, the organic chemistry department of the Imperial College of Science and Technology has been conducting experiments since September, under the direction of Prof. J. F. Thorpe. The admiralty asked the Imperial College to prepare for them 30 pounds of phenacetin, 50 pounds of hexamethylenetetramin and 1½ pounds of beta-eucain. The required quantities have now been forwarded to the naval hospitals.

Epidemic of Influenza in London

Since the outbreak of the war the public health has been remarkably good, but the record is now being threatened in the case of London, at any rate, by an epidemic of influenza. This epidemic has taken a more modified form than in recent outbreaks, and the gastric symptoms which were a distinguishing mark of last year's visitation are absent. On the other hand, the present attack is most infectious, and whenever it has seized on an individual it has usually run through the household of which he is a member. Whole offices have gradually succumbed, and as the mildness of the attack lures the sufferer to continue his normal occupation, the disease has a full opportunity of extending. A large number of cases have taken the form of pleuropneumonia, but when the complaint has not developed so gravely the symptoms are chiefly headache and a transient feverish condition, combined with tonsillitis.

Perjury in a Libel Action Against the British Medical Association

In my letter published in THE JOURNAL, September 12, last, I reported the second libel action brought against the British Medical Association by a man named Stevens, the proprietor of a quack medicine. He professed to cure consumption, and was exposed in the association's book, "Secret Remedies." In the first action the jury disagreed, and in the second gave a verdict in favor of the association. That such a powerful body as the association should have difficulty in avoiding being mulcted for damages by a notorious quack is remarkable, but the following throws some light on the matter. In my previous letter I said that a physician gave evidence on behalf of Stevens, and stated that he had practiced in West Africa and had heard the name "umckaloabo" (the alleged plant used by Stevens in preparing his remedy). It was a Kafir word, he said, meaning "life everlasting," and was valuable in chest complaints. He professed to be a ship's doctor, and also produced a paper to show that he had some sort of commission from the government of Liberia. It has now been ascertained that this person has no medical qualification. For a time he was connected with a training enterprise in Liberia, and for a short time had a sort of surgery there. He has been arrested on the charge of perjury.

PARIS LETTER

PARIS, Feb. 4, 1915.

The War

THE EMPLOYMENT OF SURGEONS AND PHYSICIANS ACCORDING TO THEIR ABILITIES

Among the criticisms which have been addressed to the military health service there is one which bears on what has been called the non-utilization of abilities. Thus well-known military surgeons have been confined to administrative functions, etc. The Societé médicale des hôpitaux de Paris has recently taken up this question, and after a report made by a committee composed of Drs. Gilbert Ballet, Mathieu and Netter, unanimously passed a resolution which has been presented to the minister of war demanding that the military health service take account as far as possible of the personal aptitudes, not only of surgeons, but also of the physicians serving with the army, and that the physicians of the hospitals of Paris and of the other important cities should be so placed in the medical services that it may be possible to utilize their knowledge and experience to the best advantage of the patients. The society hopes also that the sick and wounded may, in future, be able to benefit more largely than in the past by the care of qualified specialists in neurology, psychiatry, ophthalmology, otology and stomatology.

TREATMENT OF WOUNDS OF WAR

I mentioned in a previous letter (THE JOURNAL, Sept. 19, 1914, p. 1043) a paper read before the Académie des sciences last August by Dr. Delorme, medical inspector general of the military health service, entitled "Advice to Surgeons." According to Delorme, in the great majority of cases it is unnecessary to operate; even wounds of the abdomen follow a very simple course. In cases of fracture, he believes, it is unnecessary to remove fragments, whether adherent or free; the search for foreign bodies and their extraction is useless.

Dr. Hartmann, professor of clinical surgery at the Faculté de médecine de Paris, has just published in the *Revue Scientifique* an article showing, on the basis of the experience of four months of war, how erroneous this advice is. Delorme, in his advice to surgeons, takes into account only bullet wounds. In the present war, we are confronted very frequently with wounds made by artillery projectiles, fragments of shell or shrapnel (two wounds by artillery projectiles for every one by bullet) and, still oftener, by infectious complications, so that it is quite necessary to remove foreign bodies and fragments of bone and to open and drain the wounds. To preserve limbs, active treatment is necessary; to confine oneself to a policy of abstention, applying merely an aseptic or antiseptic dressing, is to risk the loss if not of the patient's life, at least of his limb. Wounds of the abdomen are far from presenting the benignity attributed to them by certain military physicians. What ought to be understood is the frequency of infections and suppurations. In wounds made by bullets which have struck the parts directly and have not, in their course through the tissues, met anything hard, the course of the case may be simple, and here it is appropriate to refrain from exploration of the wound and the search for foreign bodies. The simplest dressing, provided it be surgically clean, is sufficient for cure. Unfortunately, such cases are in the minority.

A bullet wound which is extremely small, almost closed, at the orifice of entry, may present, if the ball has struck bone, an enormous wound with great laceration of the parts at the orifice of exit, so that the wounded are constantly inclined to talk of explosive or dumdum bullets. This great difference between the wounds of entry and of exit is extremely striking in cases of transfixing wounds of the hand. The ball is rendered "explosive" by the mere encounter with the bones of the wrist. The same thing is true of bullets which have ricochetted and have become deformed. Bullet wounds, then, are far from having uniformly the benignity which has been attributed to them.

As for wounds made by fragments of shell or shrapnel, it is rare that they do not produce suppuration. Even in some cases in which the entrance wounds seemed aseptic, Hartmann has found, after the extraction of the shrapnel, a little collection of pus at its former site. Any one who believes that to-day the use of tincture of iodin and aseptic dressings has abolished suppuration in wounds of war, is greatly deceived. Such wounds, fortunately, generally disinfect themselves quite rapidly. A patient may arrive with

a high temperature and a huge sanious wound, sometimes even putrid or covered with gangrenous exudate; yet in a few days the fever falls, the wounds rid themselves of infection, and the course runs rapidly toward cure. This is an observation frequently made in cases of wounds which are chiefly open and involve only the soft parts.

Whatever may be the complexity of the lesions, unless there is gangrene of the limb (which is exceptional), Hartmann has always practiced conservation; he has never amputated. Astonishment has been expressed at the way in which cure occurs of apparently dangerous lesions. This does not mean, however, that all operative intervention should be eschewed. On the contrary, infected wounds should be freely opened up and foreign bodies and movable fragments of bone removed. In no cases have complications, outside of some secondary hemorrhages, been observed to follow such operations.

As for dressings, aside from the rare cases of uninfected bullet wounds, for which a drop of tincture of iodin and an aseptic dressing are sufficient, Hartmann has always sought to open up the wounds freely and has irrigated them with hydrogen peroxid or phenol solution, even bathing the part with the antiseptic or, when the region is not suitable for such treatment, using an antiseptic spray with the Lucas-Championnière atomizer. In cases of ill-smelling, sanious or gangrenous wounds, compresses wet with a dilution of Javelle water constitute a simple and inexpensive dressing which seems to Hartmann superior to tincture of iodin.

BERLIN LETTER

BERLIN, Jan. 26, 1915.

The War

FOOD SUPPLY

The possibility of the cutting off of our supply of foodstuffs has been the occasion for our limiting the employment of what is left of our food supply. It has been shown by noted physicians like Rubner, as well as by experts in political economy, that our supplies are sufficient, not only to save us from starvation, but also from any condition of undernutrition. We must take into account, however, the possibility that the next harvest may be less abundant than we suppose, and as there is nothing to indicate how long the war will last, the government has deemed itself compelled to force the population to economy by means of regulations. Naturally, the number of those who are intelligent enough to practice moderation spontaneously is not particularly larger than usual, but after it was determined that the regulation for the economic use of meat and particularly of the breadstuffs were not sufficiently observed either by the dealers or consumers, the government has now published provisions which will exert an extensive compulsion on both parties. After February 1, all the supplies of wheat and rye, as well as of wheat, rye, oat and barley flour (with the exception of very small quantities) are to be confiscated. The distribution of all these supplies to the individual communities is undertaken by an imperial distributing station which will be constituted by representatives of the imperial government and of the communal and some commercial associations. To this imperial distributing station, which is located in Berlin, the communal associations must apply for the necessary supplement of their grain and flour supplies as well as to give up any excess that they may have to the needy communities. The communal societies and the communities charged with the distribution of the flour supply must take care that there is a uniform satisfaction of the need of bread for all classes of the community. The way in which this is to be accomplished is left to their discretion. In the case of necessity, the communities may adopt extensive regulations for the use and sale of flour and bakery goods. They may order that only bread of a single form may be prepared, they may forbid or limit the trade in cakes and the distribution and receipt of bread and flour to definite quantities and limit the places where it may be distributed and the time. In addition, it may, for instance, be prescribed that bread may be furnished only on the presentation of a ticket sanctioned by the police in the amount designated as permissible and at a definite time. Finally, dealers, bakers and confectioners can be forbidden to supply bread and flour outside of the neighborhood of their business location. The regulation of the government to secure a supply of meat provides that all communities with more than 5,000 inhabitants, in order to furnish the population with meat, must keep on hand a supply of staple goods (pickled meat, smoked goods, bacon and sausages) and must take care for their preservation. The sale is then regulated by the community.

WAR AND RACIAL DEVELOPMENT

In consideration of the enormous extent of the war and the enormous number of soldiers that each nation is putting into the field, the question arises as to what will be the future of the nations involved in the war in sanitary respects if the war destroys such a large number of the most powerful and best developed men, but spares those less capable, the abnormal and diseased who cannot go into the army. This question is answered in an article by the Bonn pathologist, Prof. Hugo Ribbert. He considers the most extreme case, but one which would never be realized, that is, that no one would return from the army. Then for a number of years the nation would lack the men without whom it could not maintain its highest efficiency. To be sure, those who were excluded from the army, by increased exertion, could accomplish a part of that which those who were lacking might have produced, but there would be a certain falling off in the average of accomplishment. On the other hand, however, those who did not take part in the war, with reference to their racial characteristics, and that is the important thing, are not unconditionally of less value, as the diseases which are important in producing unfitness for service have nothing to do with racial characteristics. Another danger is much more serious; that is, the race will be propagated exclusively by the unfit and, to a certain extent, by diseased persons. The percentage of defective and diseased progeny would be so much larger than usual, in proportion as the fathers were not fit for breeding or as the children were exposed to the danger of an infection, particularly to tuberculosis, and because the hereditary pathologic conditions would be transmitted to the children. This danger would be mitigated, however, by the fact that among those unfit for service, there are many who cannot participate in the war for unimportant reasons that scarcely affect their own existence or that of the people, or whose defects cannot be transmitted to their children. Further, not all the progeny are tainted with a hereditary disease because, according to the mendelian laws of heredity, a part remains free, and, moreover, those fit for the war would have begotten a certain number of diseased or abnormal children had they remained at home, and this number must be subtracted if one wishes to determine the effect of the war on the development of the race. On the other hand, it must be remembered that if the hereditarily tainted progeny marry with each other, men and women with the same hereditary characteristics will mate more frequently than before the war. Consequently, the probability of a progeny with the same hereditary taint will be increased, but this danger is not to be rated too high, for the progeny of the unfit is not evident for all succeeding generations. Many with hereditary taint and particularly with the most serious defects do not marry. They would appear quite as rarely as they have in the course of centuries in mankind in general, for, so far as one can judge, the number of individuals with hereditary disease has only increased in the same proportion as the total of the human race. If, in spite of this, a degeneration of the human race is asserted, it must be assumed that certain external injurious circumstances have had, as a result, the appearance of new hereditary diseases.

Now, the assumption that none of those taking part in the war will return is, of course, to be rejected. If only 10 per cent. die, the results that have been mentioned would be so slight that they would scarcely exert any influence in the next generation. The results would be more serious without any extreme assumption if the war should last several decades, like the campaigns of Napoleon, which entailed the slow deterioration of the French nation by the extensive extinction of vigorous individuals.

We may hope that we will be spared such serious disadvantages from the war. It will indeed require a sacrifice of human life which will hinder the development of the people and only be compensated for in a long time, but it will not last so long that this loss will be too striking. The majority of completely efficient men will return and, for that reason, it is not to be feared that the disadvantageous influence of the unfit on the next generation will be very great. The number of efficient men will be quite large enough to insure the vigor of the next generation. This expectation should inspire us with the greatest care to take measures for racial hygiene; that persons with especially severe hereditary taint shall not be allowed to marry, and that no new transmissible defects shall be added to those already in existence.

Association News

THE SAN FRANCISCO SESSION

Ample Hotel Accommodations in San Francisco Assured by Large Number of Rooms Available

117,232 rooms in San Francisco hotels and apartment houses, 56,578 of which are in hotels of 50 rooms and over, are available for use by those attending the 1915 session, according to the announcement of the subcommittee on hotels. As was stated in THE JOURNAL last week, this committee has the cooperation of the San Francisco Hotel Bureau, a corporation formed to make as easy as possible the securing of the particular kind of accommodations wanted and at guaranteed rates. This Bureau is incorporated with a capital of $100,000, and is conducted with the official endorsement of the Panama-Pacific International Exposition, San Francisco Convention League, the San Francisco Hotel Association, and other civic bodies. With the cooperation of this responsible Bureau, the subcommittee on hotels assures Fellows of the Association and their guests that the hotel rates will be reasonable. The hotels represented by the Bureau announce a general tariff of from $1 to $3 a person, per day, European plan; and from $3.50 and up, a person, per day, American plan. While, in a few of the more fashionable hotels, the rates are from $4 to $10 a person per day, all who attend the session can be accommodated with modern and good quarters at the lesser rates. Contracts will be made at these rates for any date and for any length of time desired. The most direct way to obtain information regarding the particular kind of hotels or rooming house accommodations desired, is to indicate on the application blank which appeared on page 21 of the advertising section of last week's issue of THE JOURNAL (Feb. 20, 1915) (1) whether a hotel or apartment house is desired; (2) if a hotel, whether European or American plan; (3) state definitely the date on which you expect to reach San Francisco; (4) the probable length of your stay; (5) the number of persons to be accommodated, and (6) maximum rate that will be paid. On receipt of your request, the Bureau will furnish the names of a number of hotels or apartments meeting the requirements, and from this list a selection can be made with better judgment.

No fees or charges of any kind will be required by the subcommittee on hotels or the Bureau, but a satisfactory guarantee is asked to assure that the rooms will be used at the time specified in the contract. The Bureau will issue reservation certificates guaranteeing the holder hotel accommodations in accordance with his request, on receipt of application accompanied by $5. This deposit shall apply as part or in full payment for any accommodations or services furnished.

Visitors will be met by uniformed guides of the Bureau, who will furnish strangers with any information desired. Those who arrive in the city without having made hotel reservations will be directed to the Hotel Registration Bureaus which will be established at convenient points and which will assign visitors to hotels in accordance with the rate they desire to pay. Transportation of passengers from the depot bureaus will be provided by the Universal Bus and Taxi Company, which is officially endorsed by the Hotel Association and which will provide a uniform means of conveyance to the hotels, rooming and apartment houses of the city. This service will be extended over definitely prescribed areas, and the charge for each passenger, including hand baggage, will be twenty-five cents.

Railroad Rates to San Francisco

From eastern points to San Francisco, Oakland, Los Angeles and San Diego, round trip excursion tickets will be on sale on and after March 1 to Nov. 30, 1915, with return limit of three months, but in no case later than Dec. 31, 1915. Stopovers will be allowed both going and returning within the final limit of ticket. On all tickets with San Francisco as the destination, reading in one or both directions through Los Angeles, a free side trip from Los Angeles to San Diego will be allowed, provided this is included in the ticket at the time of purchase—it will not be granted after arrival at Los Angeles or under other than the conditions stated. Tickets reading in one direction via Portland, Tacoma, Seattle, Victoria or Vancouver, will be on sale at a rate $17.50 higher than for direct lines both ways.

SOME RATES OF FARE TO SAN FRANCISCO

Boston (according to route to Mississippi Valley gateway)	$ 97.70-$108.30
Chicago	62.50
Denver, Colorado Springs and Pueblo	45.00
Kansas City	50.00
Memphis, Tenn.	57.50
New York (Differential or Standard Lines)	94.30- 98.80
New Orleans	57.50
Omaha, Neb.	50.00
Philadelphia (Differential or Standard Lines)	92.95- 95.20
Portland, Me. (according to route to Mississippi Valley gateway)	102.70- 113.80
St. Louis	57.50
Washington, D. C.	92.30

Deaths

Theodore Potter, M.D. Medical College of Ohio, Cincinnati, 1887; a Fellow of the American Medical Association; president of the Indianapolis Medical Society in 1911; professor of principles of medicine and clinical medicine in the University of Indiana; attending physician to the Indianapolis City Hospital and consulting physician to the Protestant, Deaconess and St. Vincent's hospitals, Indianapolis; a member of the National Association for the Study and Prevention of Tuberculosis and one of the leaders in the antituberculosis movement in the state; a member of the Tuberculosis Hospital Commission; vice-president of the Indiana Society for the Prevention of Tuberculosis and secretary of the Marion County Society; died at his home in Indianapolis, February 8, from tuberculosis, aged 53. At a called meeting of the Indianapolis Medical Society, February 8, suitable action was taken regarding the death of Dr. Theodore Potter.

Edward Daniels Clark, M.D. University of Buffalo, 1909; a Fellow of the American Medical Association and a well-known young practitioner of Buffalo; for three years connected with the health department of that city, but since last September assistant to Dr. Fred. M. Meader, associate professor of preventive medicine in the College of Medicine of Syracuse University; First Lieutenant, M. C., N. G., N. Y., assigned to Sixty-Fifth Infantry and later transferred to Third Infantry; was found dead in his room in Syracuse, February 13, from the effects of an overdose of chloroform, aged 27.

Paul Pomeroy Allen, M.D. Medico-Chirurgical College of Philadelphia, 1909; a member of the Medical Society of the State of Pennsylvania and assistant secretary of the Medical Society of Franklin County; treasurer of the Cumberland Valley Medical Association; a member of the staff of the Chambersburg Hospital; acting inspector for the State Board of Health of Franklin County; health officer of the Borough; and one of the most promising young practitioners of Pennsylvania; died at his home in Chambersburg, February 10, from pneumonia, aged 29.

Eugene Grignon, M.D. University of Victoria College, Coburg, Ont., 1886; of Menominee, Mich.; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; for two terms coroner of Menominee County, health officer of Menominee, treasurer of Menominee County and judge of the probate court; while making a professional call in the country, January 31, was stricken with cerebral hemorrhage, and died in St. Joseph's Hospital, Menominee, February 2, aged 58.

Henry Frederick Wegener, M.D. Hahnemann Medical College, Chicago, 1874; since 1876 a teacher and high school principal; once president of the Denver Microscopical Society and Colorado State Teachers' Association; for the last seven years head of the science department of the Stadium High School, Tacoma, Wash.; died at his home in that city, February 5, from heart disease, aged 70.

William Fleming Breakey, M.D. University of Michigan, Ann Arbor, 1859; a member of the Michigan State Medical Society; for forty-four years clinical professor of dermatology and syphilology in his Alma Mater; director of the skin clinic of the University of Michigan Hospital; surgeon of U. S. Volunteers during the Civil War; for thirty-seven years secretary of the local board of U. S. Pension Examining Surgeons; died at his home in Ann Arbor, February 14, aged 79.

Edmund A. Chapoton, M.D. Detroit (Mich.) Medical College, 1875; a Fellow of the American Medical Association; clinical professor of principles and practice of medicine in the Detroit College of Medicine, and attending physician to St. Mary's Hospital, Detroit; a member of the Detroit Fire Commission from 1907 to 1913; and from 1888 to 1892, a member of the Detroit Board of Health; died at his home in Detroit, February 6, from heart disease, aged 62.

Lester Charles Mitchell, M.D. New York University, New York City, 1867; a veteran of the Civil War and later a practitioner of Joliet, Ill., and Minneapolis, Minn., and first superintendent of the Minnesota College Hospital; a prominent figure in the grain and milling interests of the Northwest; president of the Aberdeen (S. Dak.) Milling Company; died at the home of his daughter in Hamburg, N. Y., February 12, aged 72.

William Dugan Kelly, M.D. Harvard Medical School, 1903; of Boston; a member of the Massachusetts Medical Society; formerly president of the Boston Medical Society; medical inspector of schools and agent of the Municipal Board of Health of Boston; one of the founders of the clinic and milk station at Elizabeth Peabody House; died in the Carney Hospital, Boston, February 8, from septicemia, aged 34.

Harry Briscoe Vanatta, M.D. Medical College of Indiana, Indianapolis, 1896; a Fellow of the American Medical Association and a member of the Aesculapian Society of the Wabash Valley; formerly of Lerna, Ill.; aged 34; died in Mattoon, Ill., February 1, from the effects of a gunshot wound believed to have been self-inflicted while despondent on account of carcinoma of the stomach.

William Henry Gail, M.D. University of Buffalo, 1864; for many years a practitioner of East Aurora, N. Y.; local surgeon for the Pennsylvania System for thirty-four years; a medical cadet and assistant surgeon of the Eighteenth (N. Y.) Volunteer Cavalry during the Civil War; died at the home of his daughter in Buffalo, February 6, from heart disease, aged 74.

John Wesley Martin, M.D. (License, Kentucky, thirty-seven years' practice, 1893) a Forty-Niner and afterward a practitioner of Kentucky; surgeon of the Fourteenth (Ky.) Volunteer Infantry during the Civil War; who had been operated on in Cincinnati for cataract a few days before; died at his home in Ashland, Ky., February 3, from acute gastritis, aged 87.

John Franklin Davison, M.D. New York University, New York City, 1881; of Asbury Park, N. J.; for several years a member of the Asbury Park Board of Education and for one year its president; died at the Paul Kimball Hospital, Lakewood, N. J., February 2, after a surgical operation for disease of the intestines, aged 55.

Perry O. Guise, M.D. College of Physicians and Surgeons, Baltimore, 1882; for many years a member and clerk of the Board of Education of Findlay, Ohio; for two terms treasurer of Findlay and four years township clerk; died in the Home and Hospital, Findlay, February 9, from arteriosclerosis, aged 62.

Harry Paul Chambers, M.D. College of Physicians and Surgeons, Baltimore, 1891; a Fellow of the American Medical Association; surgeon to the Commonwealth Iron Company, Florence Iron Company, and Reserve Mining Company, Florence, Wis.; died at his home in Florence, February 9, aged 47.

Thomas Carney, M.D. Albany (N. Y.) Medical College, 1902; of Schenectady, N. Y.; a member of the Medical Society of the State of New York; and a major in the New York National Guard; died in Johns Hopkins Hospital, Baltimore, February 6, after an operation for disease of the stomach.

Casper H. Viehe, M.D. Homeopathic Medical College of Missouri, St. Louis, 1876; a member of the Indiana State Medical Association; an ordained minister of the Evangelical Lutheran Church; died at his home in Evansville, Ind., February 1, aged 78.

William H. Merrell, M.D. Bellevue Hospital Medical College, 1869; of South Branch and Somerville, N. J.; a member of the Medical Society of New Jersey and president of the Somerset County Medical Society; died in the Somerset Hospital, Somerville, February 9, from heart disease, aged 52.

Rufus Franklin Smith, M.D. University of Virginia, Charlottesville, 1881; for many years a practitioner and druggist of Easley, S. C.; president of the Easley Loan and Trust Company and chairman of the Board of School Trustees; died at his home in that place, February 3, aged 57.

John Henry Bird, M.D. College of Physicians and Surgeons, Chicago, 1884; for eight years assistant house physician of the Congress Hotel, Chicago, and later secretary and treasurer of the C. S. Hammond Publishing Company; died at his home in New York City, January 31, aged 73.

George W. Brown, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1868; prominent as an anti-slavery advocate and founder and editor of the *Herald of Freedom* and of the Conneautville, Pa., *Courier;* died at his home in Rockford, Ill., February 5, aged 94.

John Jasper Lake, M.D. Rush Medical College, 1857; a pioneer resident of DeWitt County, Ill.; for many years a practitioner, druggist and postmaster of Kenney, Ill.; died in the Odd Fellows' Old Folks Home, Mattoon, Ill., February 5, from senile debility, aged 85.

William E. Walker, M.D. Hahnemann Medical College, Philadelphia, 1891; died at his home in West Charleston, Maine, January 11, from a gunshot wound of the heart, self-inflicted it is believed with suicidal intent, while despondent on account of ill health, aged 50.

George E. Waller, M.D. Medical College of Virginia, Richmond, 1861; a surgeon in the Confederate service during the Civil War; for many years coroner and justice of the peace of Henry County, Va.; died at his home in Martinsville, Va., February 2, aged 76.

Richard Flavel Woods, M.D. University of Pennsylvania, Philadelphia, 1895; a Fellow of the American Medical Association; and a member of the Philadelphia Surgical and Philadelphia Obstetrical societies; died at his home in Philadelphia, February 10, aged 41.

Alexander McElroy Rea, M.D. Jefferson Medical College, 1865; assistant surgeon of U. S. Volunteers during the Civil War; for forty-seven years a practitioner of West Middletown, Pa.; died at his home in that place, February 2, from heart disease, aged 72.

J. J. Perry, M.D. University of Louisville, Ky., 1853; surgeon in the Confederate service during the Civil War; for forty-five years a physician of Texas; died at the home of his son in Hempstead, Tex., February 2, from senile debility, aged 87.

Charles Brooks Scott, M.D. University of Buffalo, N. Y., 1881; of Loudenville, Ohio; a member of the village council and of the board of education; a director of the Citizens' Saving Bank, Loudenville, and local railway surgeon; died at Knoxville, Tenn., January 27, aged 57.

Wilford Harris Gragg, M.D. Vanderbilt University, Nashville, Tenn.; 1879; University of Nashville, Tenn., 1880; for ten years superintendent of the Shelby County (Tenn.) Poor and Insane Asylum; died at his home in Gragg Station, Tenn., recently, from pneumonia, aged 61.

Calbe Winfrey, M.D. Washington University, St. Louis, 1847; for seventy-two years a resident of Jackson County, Mo.; surgeon in the Confederate Service during the Civil War; died in St. Joseph's Hospital, Kansas City, Mo., January 30, aged 91.

Jared D. Wetmore, M.D. Hahnemann Medical College, Chicago, 1882; formerly health officer of Yaquina Bay, Ore., and surgeon at the Siletz Indian Agency; died at his home in Portland, Ore., in December, aged 56.

John H. Jenkin, M.D. New York University, New York City, 1893; a member of the Medical Society of the State of New York; died at his home in Shrub Oak, N. Y., January 28, from cerebral hemorrhage, aged 45.

James H. Hoag, M.D. Hahnemann Medical College, Chicago, 1883; of Connersville, Ind.; while attempting to flag a traction car near Connersville, January 24, was struck by the car and died four hours later.

Alfred Napoleon Culberson, M.D. Tennessee Medical College, Knoxville, 1909; of Evens, Ga.; charged with an attack on a woman; was shot and killed by a posse of citizens near Evens, February 4, aged 35.

Kurt Seyferth, M.D. University of Maryland, Baltimore, 1885; formerly professor of languages in Baltimore City College; died at his home in Baltimore, January 9, from disease of the liver, aged 62.

Thomas Walter Taylor, M.D. University of Louisville, 1845; said to be the oldest practitioner in Kentucky; died at the home of his daughter in Henderson, Ky., January 8, from pneumonia, aged 91.

John Wesley Mitchell, M.D. Bowdoin College, Brunswick, Maine, 1863; surgeon of U. S. Volunteers during the Civil War; died at his home in New Orleans, January 12, from arteriosclerosis, aged 78.

William James Allen, M.D. Baltimore University, 1886; a member of the Medical Society of the State of Pennsylvania; died at his home in Landisburg, Pa., Dec. 31, 1914, from nephritis, aged 53.

Henry F. Weis, M.D. University of Heidelberg, Germany, 1863; surgeon of U. S. Volunteers during the Civil War; died at his home in Dayton, Ohio, January 26, from cerebral hemorrhage, aged 84.

John Lloyd McKay, M.D. Philadelphia University of Medicine and Surgery, 1870; of King's Mountain, N. C.; died at the sanatorium at Gastonia, N. C., Oct. 2, 1914, from cerebral hemorrhage, aged 69.

Matthew W. Harvison, M.D. Bennett Medical College, Chicago, 1898; one of the owners of the Harvison Hospital, Palouse, Wash.; died at Los Angeles, January 24, from tuberculosis, aged 52.

William F. Spence (license, Miss., 1882); a practitioner since 1860; for many years health officer of Hancock County, Miss.; died at his home in Caesar, Miss., January 10, from pneumonia, aged 73.

Joseph W. Wood, M.D. University of Louisville, Ky., 1868; for fifty years a practitioner of Metcalfe County, Ky.; died at the home of his daughter in Edmonton, Ky., January 9, aged 79.

Thomas S. Evans, M.D. Vanderbilt University, Nashville, Tenn., 1875; a Confederate veteran; died at his home near Flat Woods, Tenn., January 21, from nephritis, aged 72.

William G. Wilson, M.D. University of Maryland, Baltimore, 1852; for nearly half a century a practitioner of Shelbyville, Ill.; died at his home in that city, January 16, aged 87.

Edwin C. Thompson, M.D. Western Reserve University, Cleveland, Ohio, 1885; died at his home in West Liberty (Slippery Rock), Pa., January 9, from pneumonia, aged 53.

William H. Sherwood, M.D. Western Reserve University, Cleveland, Ohio, 1873; died at his home in Unionville, Ohio, January 26, from cerebral hemorrhage, aged 62.

Homer Dwight Hodge, M.D. University of Michigan, Ann Arbor, 1887; of Jackson, Mich.; died in the Jackson State Hospital, January 26, from paralysis, aged 60.

Thomas J. Spurlock, M.D. Eclectic Medical Institute, Cincinnati, 1856; of McComb, Miss.; died at the home of his son in Summit, Miss., January 22, aged 84.

James Wellington Starr, M.D. Cincinnati College of Medicine and Surgery, 1881; died at his home in Montpelier, Ohio, January 14, from arteriosclerosis, aged 61.

George O'Donnel Walton, M.D. McGill University, Montreal, 1873; for forty years a practitioner of Barbadoes, B. W. I.; died at his home recently, aged 71.

Landon A. Beale, M.D. Missouri Medical College, St. Louis, 1886; was found dead in his office in St. Louis, January 29, from heart disease, aged 47.

John C. Marshall, M.D. Louisville, Ky., Medical College, 1892; of Chuckey, Tenn.; died at his old home in Newmansville, Tenn., Dec. 30, 1914, aged 50.

J. Henry Brooks, M.D. Georgetown University, Washington, D. C., 1865; died at his home in Washington, January 29, from cerebral hemorrhage, aged 74.

Elizabeth Ellis, M.D. Harvey Medical College, Chicago, 1902; died at her home in Burns, Ore., Oct. 15, 1914, from cerebral hemorrhage, aged 60.

Marvin C. Wood (license, Utah, 1906); a practitioner since 1899; died at his home in Kanab, Utah, Dec. 29, 1914, from cerebral hemorrhage, aged 60.

Francis E. Carpenter, M.D. Jenner Medical College, Chicago, 1903; died at his home in Chicago, Dec. 28, 1914, from nephritis, aged 61.

Marie Jean Stees, M.D. Illinois Medical College, 1898; died at her home in Chicago, February 4, aged 53.

Cornelius F. Dowd, M.D. University of Pennsylvania, Philadelphia, 1867; died at his home in Willow Springs, N. C., Nov. 26, 1914, aged 74.

Michael William Kelleher, M.D. Bellevue Hospital Medical College, 1885; died at his home in Chicago, January 30, from nephritis, aged 58.

Frank S. Sovreen, M.D. New York Homeopathic Medical College, New York City, 1880; died at his home in Evart, Mich., Oct. 4, 1914.

John Morgan Howe, M.D. New York Homeopathic Medical College, 1879; died at the home of his son in New York City, Nov. 13, 1914.

Manley Horatio Sprague, M.D. Columbus, Ohio, Medical College, 1880; died at his home in Ottumwa, Iowa, January 13, aged 61.

Arthur Hubert Martel, M.D. Laval University, Montreal, Que., 1902; died at his home in East Angus, Que., Nov. 24, 1914, aged 38.

David Hammell, M.D. Long Island College Hospital, Brooklyn, 1877; died at his home in Detroit, Mich., January 23, aged 66.

Alvin P. Sawyer, M.D. Hahnemann Medical College, 1880; died at his home in Chicago, February 3, from nephritis, aged 59.

Abner Mulholland Rosebrugh, M.D. University of Toronto, Ont., 1859; died at his home in Toronto, Nov. 26, 1914, aged 79.

Andrew Dixon Packer, M.D. Long Island College Hospital, Brooklyn, 1908; died at his home in Brooklyn, February 1, aged 35.

George W. Dewease (license, Indiana, years of practice, 1897), died at his home in Fredericksburg, Ind., Nov. 3, 1914, aged 76.

Robert Bowen, M.D. American Medical College, Cincinnati, 1853; died at his home in Berlin, N. J., Dec. 12, 1914, aged 87.

Columbus V. Wedding, M.D. University of Louisville, Ky., 1879; died at his home in Kansas City, Mo., January 26, aged 60.

Freeland L. Etter (license, Texas, 1902), a colored practitioner of Harris, Tex.; died in Dallas, Tex., Oct. 25, 1914.

William J. Murphy, M.D. Albany, N. Y., Medical College, 1881; died recently at his home in San Bernardino, Cal.

Alexander Jenks (license, Kan., 1901), of Hanover, Kan.; died in the Topeka State Hospital, January 24, aged 71.

John W. Ruble (license, Tenn., 1889), died at his home in Del Rio, Tenn., January 21, aged 64.

Marriages

HENRY WISE WOOD, M.D., Maben, W. Va., to Miss Mamie Estella Warrener of Athens, Ohio, at Washington, D. C., Dec. 22, 1914.

GEORGE REESE SATTERLEE, M.D., New York City, to Miss Mabel Alger Powell of Ghent, N. Y., in New York City, February 9.

FREDERICK MELVILLE HORSLEY, M.D., Lovington, Va., to Miss Laura Stringfellow Boyd of Farmville, Va., January 27.

GILBERT DE WITT DARE, M.D., Morrisonville, N. Y., to Miss Mabel Claire Hancock of Colorado Springs, Colo., February 6.

FRANKLIN EDWARD MURPHY, M.D., to Miss Cordelia Antoinette Brown, both of Kansas City, Mo., February 16.

P. A. SURG. AUSEY HAMILTON ROBNETT, U. S. N., to Miss Mary Louise Manifor of Las Animas, Colo., January 21.

HENRY BUSH BEESON, M.D., Hannibal, Wis., to Miss Ann Elizabeth Urguhart of Medford, Wis., February 10.

WILLIAM WHITE MCKENZIE, Salisbury, N. C., to Miss Florence Robinson of New Orleans, February 1.

P. A. SURG. JOHN BOWDOIN MEARS, U. S. N., to Miss Eulalie Mary Kahle of Elkton, Va., January 23.

WILLIAM ROY OWEN, M.D., to Miss Johanna Skogmo, both of Manford, N. Dak., February 1.

HOWARD TRACY LANGWORTHY, M.D., to Miss Eva A. DaVoll, both of Brooklyn, February 10.

IRVING FREILER STEIN, M.D., to Miss Lucile Oberfelder, both of Chicago, February 20.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

WINE OF CARDUI[1]

The Company Solicits the Medical Profession for Testimonials to its Nostrum

Readers of THE JOURNAL are familiar with the articles that have been published regarding Wine of Cardui, manufactured by the Chattanooga Medicine Company whose chief owner is said to be John A. Patten. After the appearance of THE JOURNAL'S article in its issue of July 18, 1914, John A. Patten and the Chattanooga Medicine Company entered suit against the American Medical Association and the editor of THE JOURNAL for $300,000.

Since this suit was brought the same concern has sued one of the trustees of the American Medical Association, Dr. Dowling, for $25,000 because he, as President of the Louisiana State Board of Health, exhibited in the Health Exhibit Train, sent out by the state of Louisiana, an educational placard (which we reproduce in miniature on this page) dealing with Wine of Cardui. Still later, the concern entered suit against *Harper's Weekly* for $200,000 for the publication of matter regarding Wine of Cardui.

Wine of Cardui retails for a dollar a bottle and according to all reports it is a good seller. For years the profits accruing from the sale of this nostrum have been used lavishly in many directions. The power that comes with great wealth easily and not-too-scrupulously acquired, has been evident since the filing of these libel suits.

In THE JOURNAL for Sept. 12, 1914, a letter was published describing the alleged methods of the Chattanooga Medicine Company in its attempts to obtain from physicians favorable testimony regarding Wine of Cardui. This letter, written by a physician, gave what purported to be a conversation between another physician, whom we will call Dr. A, and a Wine of Cardui representative. Briefly, the story was that Dr. A had been told that the Chattanooga Medicine Company desired to retain him as an expert; that a retainer would be paid immediately for his services, and that if he would go before their attorney and make a deposition favorable to Wine of Cardui he would be paid $25 a day and expenses, and should his services be needed as an expert at the Chicago trial, he would be paid $50 a day and expenses for these services. Several months after this letter was published, Dr. A seems to have repudiated the conversation reported to have taken place between himself and the Wine of Cardui representative and to have warmly espoused the cause of the "patent medicine" concern's agent. Without going into details at this time regarding this matter, it is pertinent to note that in the interim between THE JOURNAL'S publication and Dr. A's "repudiation," certain incidents had occurred locally. Dr. A, who is not a member of his local society, seems to have taken umbrage at some of the other physicians in his town who are members of the local organization. The details in this case may be gone into more fully at another time.

WINE OF CARDUI
A Fraudulent Alcoholic Nostrum Sold as "THE WOMAN'S TONIC"
BEFORE there was any penalty attached to lying on the label Wine of Cardui was sold under this claim.
OLD LABEL
AFTER the Food and Drugs Act passed, here is what the manufacturers had to admit.
NEW LABEL
AN ALCOHOL COMPARISON
Four tablespoonfuls of Wine of Cardui (which is the daily dose recommended) contains as much ALCOHOL as two-thirds of a bottle of beer.
BEER

For displaying the original, of which this is a miniature, Dr. Oscar Dowling, President of the Louisiana State Board of Health, has been sued for $25,000 by the Chattanooga Medicine Company. The Louisiana State Board of Health upholds its president and declares Wine of Cardui a fraudulent nostrum pernicious and baneful in effect.

That the Chattanooga Medicine Company is very busy throughout the South attempting to get physicians to express themselves favorably to the Wine of Cardui nostrum, is quite evident. We give a few letters that have been received in this connection. This from a physician in Missouri:

"A gentleman came into my office and after having been seated, inquired if I had ever used Wine of Cardui in my practice. I replied that I had not. He then asked me if, as a druggist, I had noted good from its sale and use in the way of saving doctors' bills for suffering ladies. I told him I believed every word THE JOURNAL had published about Wine of Cardui, and he said that his company would be able to show that it had done a wonderful lot of good and that later I would find the Association facing a court order and injunction, and they courted investigation; in fact insisted upon having justice in this matter. I dismissed him with the remark that I believed Wine of Cardui one of several colossal frauds foisted on suffering and trustful humanity and that I wanted to see justice prevail. He bade me good day remarking, 'Doctor, you may later have reason to know that you have been wrongly informed.' Had I acted differently, I believe I could have learned more, but I could hardly contain myself. I believe they are making a systematic hunt for anything that will sustain their suit."

And this from a physician in Illinois:

"I wish to mention that the Chattanooga Medicine Company is dubiously soliciting signatures to prove that their preparation is not sold as a beverage. Agent wanted me to sign that I did not know that Wine of Cardui was sold as a beverage. I refused."

This from a physician in Virginia:

"I wish to commend your work in exposing 'patent medicine' frauds and I am particularly interested in the Wine of Cardui suit. A few days since a winsome young woman (a Miss Ervin) from Chattanooga came through this section soliciting the profession for testimonials showing the merits of Wine of Cardui. Such 'nerve' is hard to imagine. She visited most of the men in this section but I know of but one from whom she obtained a testimonial. Later I learned that the young woman is a lawyer and that such testimonials are to be introduced as evidence in the suit of Wine of Cardui against the American Medical Association."

While this is from a physician in Arkansas:

"Yesterday I was told by a salesman for the Chattanooga Medicine Company that they were going to have five thousand doctors' testimonials in their suit against you regarding the merits of Wine of Cardui. He said all these doctors would be graduates of reputable medical colleges but, of course, failed to state how they were going about getting these testimonials."

The letter that follows, while somewhat of the same nature as the preceding ones, is especially interesting for reasons that will soon be apparent. It comes from a physician in Louisiana:

"Yesterday, a representative of the Chattanooga Medicine Company whose name is J. G. Cairns and who lives in Chattanooga, Tenn.,

1. See editorial p. 744.

called to get me to give my opinion on Wine of Cardui. I told him I knew nothing about the concoction from *personal* experience, as I never had a patient whom I knew to take it, but that I accepted the criticisms of THE JOURNAL of the American Medical Association. He said he was interviewing the physicians all over the country asking them for the very worst opinion they have of Wine of Cardui. He said that in some parts of Alabama and Tennessee the doctors prescribed 'The Woman's Tonic.' Whereupon I asked him if he would have a physician to attend a sick member of his family who would prescribe Wine of Cardui and he said: 'If I lived in the back-woods, remote from good ethical doctors I'd have to consult them or none.' He further said only country doctors prescribe Wine of Cardui. He said he was looking after the legal part of the Chattanooga Medicine Company's business, appearing to want to leave the impression that he was a lawyer, but upon my putting the question direct he admitted that he is not a lawyer. I did not instruct him to not quote me in the opinion I gave, but feel sure he will not."

It would be interesting to learn whether the J. G. Cairns who is alleged to be interviewing physicians in the interest of the Chattanooga Medicine Company is the Rev. J. G. Cairns, who, according to Chattanooga newspapers, was arraigned last November before a trial committee of the Holston Methodist Conference on charges of "lying," "dishonesty" and "irregularities in the administration of the Alton Park church building fund." J. G. Cairns, the minister, was exonerated of these charges at the same time and by the same conference that extended a "whitewash" to John A. Patten, and the Wine of Cardui business. After his exoneration, J. G. Cairns was made associate pastor of Mr. Patten's church, the First Methodist Church of Chattanooga. Our readers will remember that the former pastor of this church, the Rev. C. H. Myers, did not sympathize with the methods by which Mr. Patten made his money or with the influence this money exercises in the church. Mr. Myers was removed from his pastorate at the same conference that exonerated Cairns and Patten. As recently as February 1, the Rev. J. G. Cairns has come to the open defense of John A. Patten in a letter to the Chattanooga *Times*, a paper that appears to be the mouthpiece of Patten and his interests. Mr. Cairns rebuked a local politician—unnamed—for opposing Mr. Patten who, according to Cairns, had granted to the politician "favors, political and financial." It might be a matter of interest to Methodism to determine whether J. G. Cairns of the First Methodist Church of Chattanooga is on the pay roll of the Chattanooga Medicine Company. If the Rev. J. G. Cairns is the same person as the J. G. Cairns referred to by our correspondent then the nice problem presents itself: Can the position of associate pastor to the First Methodist Church of Chattanooga be adequately filled by a man who is traveling around the country in behalf of the Chattanooga Medicine Company and Wine of Cardui?

Harper's Weekly for Feb. 27, 1915, has another article on Wine of Cardui referring specifically to Mr. Patten's suit. In commenting on the attempts of the Chattanooga Medicine Company to get physicians to testify to the value of Wine of Cardui, *Harper's* says that the methods of the concern, while shrewd and "slick," fail to take into account the honesty of physicians. It believes that while some few doctors may be willing to barter their professional reputations for a mess of pottage, the great majority will not be. *Harper's* correctly appraises the medical profession.

LOUISIANA STATE BOARD ACTS

Apropos of what is published above is the following, which appeared in the *New Orleans Item*, Feb. 18, 1915.

HEALTH BOARD HITS AT WINE OF CARDUI

Backs Dowling in Holding It Pernicious; War on Others

Branding Wine of Cardui as being "among the most fraudulent" of "nostrums pernicious and baneful in effect" the State Board of Health Thursday afternoon endorsed by resolution the campaign of Dr. Oscar Dowling, president of the board, against it and other patent medicines.

"These nostrums are pernicious and baneful in effect," says the resolution in part. "The enormous profits accruing from the sale of so-called medicines are derived largely from the income of the very poor and the unfortunate. Among the most fraudulent of these preparations is Wine of Cardui, manufactured and sold by the Chattanooga Medicine Company, Chattanooga, Tennessee, and St. Louis, Missouri, as proved by analysis in the laboratory of the state board of health, the ingredients of this nostrum being alcohol and vegetable materials practically therapeutically inert.

"*Therefore be it resolved:* That the State Board of Health unanimously approves and supports the campaign against harmful patent and proprietary nostrums now being prosecuted by Dr. Oscar Dowling, the executive officer of this board.

"That he is authorized to push the campaign to the full extent of the law with the hope of destroying the baneful influence of the owners and manufacturers of the many noxious articles now offered to the public.

"That the exhibit placed on the Louisiana state board of health exhibit car which illustrates the fraudulent claims of Wine of Cardui and other patent preparations, has our full approval and commendation.

"That the suit by the Chattanooga Medicine Company, Chattanooga, Tennessee, brought against the president of the Louisiana State Board of Health as an individual, should have been filed against the president and executive officer of the State Board of Health and in the prosecution of this suit the Louisiana State Board of Health will give Oscar Dowling, its president and executive officer, cordial support and assistance to the limit of its power and resources.

"That we welcome the opportunity to assist in this suit, the outcome of which we are confident will be a death blow to the popular use of Wine of Cardui and all other fraudulent patent nostrums."

Correspondence

Cabot, Bernard Shaw, and the Medical Profession

To the Editor:—In the February number of *McClure's Magazine*, I am quoted in an article by R. H. Schauffler as backing Bernard Shaw's charges against the medical profession, except his attitude on animal experimentation. Shaw's attack is summarized in his own words, including the following sentence: "Most doctors have no honor and no conscience." Other sentences in Shaw's habitual exaggerative style follow, and my approval of them all is assumed. The facts of the matter are as follows:

In the *Survey*, June 3, 1911, I wrote, at the request of that magazine, a review of Shaw's play entitled, "The Doctor's Dilemma," and said that as regards "Mr. Shaw's principal theses and in the main, I find myself heartily in agreement with him." I did not suppose that any one would take Shaw seriously enough as to suppose that a ridiculous calumny, such as the statement that "most doctors have no honor and no conscience" would be regarded as a significant or an important remark. It should go without saying that I have no sympathy with such a statement, as I believe the medical profession to be as honorable and conscientious a body of men as any in the country. In the article on which Mr. Schauffler's misstatement of my position is founded, I summed up what in my opinion were the main offences of our profession, offences which we all recognize and deplore. I specified such shortcomings as these: that we do not tell patients with sufficient vigor the truth about their habits and their own responsibility for disease; that we sometimes foster cases of imaginary illness; that we sometimes perform unnecessary operations; that fee splitting and other abuses are widespread. No one, I suppose, will doubt these facts and no one will have much doubt that they will continue as long as the doctors of the country are as miserably poor as at present. So long as the economic status of the doctor is what it is, we cannot look for much improvement in that direction.

This was Shaw's belief about the whole matter and it is mine. It is not a question of blaming anybody but of getting something done. That "something" is raising of the stand-

ards of examining boards for the license to practice medicine. This is what the medical profession can do, of itself, and do immediately. It cannot, of itself, carry out the other greatly needed reform which I believe is coming through the more intelligent activity of hospital trustees, namely, the payment of hospital physicians for full time work and the selection of these physicians by methods that exclude favoritism and the methods of the close corporation.

I should add that I understand perfectly Mr. Schauffler's unintentional mistake in the statement of my position. He is a man for whom I have the greatest admiration, and I am sure he would not willingly misrepresent any one.

RICHARD C. CABOT, M.D., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DENATURED ALCOHOL FOR EXTERNAL USE

To the Editor:—In THE JOURNAL, Jan. 2, 1915, p. 72, it is stated that the external use of any alcohol containing wood spirits is unsafe.

When denatured alcohol first came out, we very cautiously began the use of it for external use, in place of grain alcohol. After a very extended experience covering the use of at least ten barrels, we are justified in stating that it takes the place of grain alcohol in all rubbings and for wet dressings for wounds. We have never seen the slightest trace of poisoning following its use, and we now never use grain alcohol for either of these purposes. We certainly think that the idea that denatured alcohol is poisonous for external use is erroneous and is not based on facts of its use.

F. E. CLOUGH, M.D., Lead, S. Dak.

ANSWER.—The caution against the use of denatured alcohol has been made by THE JOURNAL on the ground that while bad results may occur only in a very small number of cases, it is better to employ a perfectly safe preparation. It is probable that this statement should have been made with some qualification.

Although clinical reports indicate decided danger to the digestive apparatus, nervous system, eyesight, etc., from intoxication due to the use of methyl alcohol (especially of deodorized methyl alcohol) for such external uses as massage of the skin, yet in all probability the employment of "denatured" (methylated) alcohol is, for these external uses, harmless. It is not at all likely that sufficient methyl alcohol is absorbed into the system by occasional rubbings with denatured alcohol (which, like the British and German mixtures, contains about 10 per cent. of crude methyl alcohol) to produce untoward effects. However, *wet* dressings of wounds with denatured alcohol offer a better chance of minor intoxications than rubbings.

ETHYLHYDROCUPREIN

To the Editor:—Please discuss the chemistry and pharmacology of ethylhydrocuprein.

T. E. FULLER, M.D., Texarkana, Texas.

ANSWER.—Ethylhydrocuprein hydrochlorid is a chlorid of ethylhydrocuprein, a derivative of the base cuprein derived from the bark of China Cuprea. Ethylhydrocuprein is closely related to quinine, differing from the latter in that it contains an ethoxy group instead of a methoxy group, and contains two more atoms of hydrogen, which convert an ethenyl group into an ethyl group. Thus quinin has the formula $C_{20}H_{24}O_2N_2$ and ethylhydrocuprein the formula $C_{22}H_{28}O_2N_2$.

Cuprein is said to have an action very similar to that of quinin, but much weaker. The introduction of the ethoxy and ethyl groups, forming ethylhydrocuprein, make the action more pronounced, so that it is asserted that its action as an antimalarial agent is greater than that of quinin. For ethylhydrocuprein it is claimed, especially, that it has a specific action on pneumococcus infection by which it produces a curative effect in doses that are not injurious to the organism. R. Levy (*Berl. klin. Wchnschr.*, Dec. 30, 1912), after a number of experiments, concludes that it is possible to check and permanently cure an infection with *Streptococcus mucosus* after it has reached its full development, while the untreated control mice succumb to the bacteriemia in a typical manner. G. Izar and R. Nicosia (*Berl. klin. Wchnschr.*, March 9, 1914) report successful results in obstinate cases of malaria in which the use of quinin had been unsuccessful.

This preparation is exploited as a proprietary under the name Optochin, and is controlled by U. S. patent. Although the statements made in the literature are favorable to the preparation, they do not appear to have been confirmed.

OPIUM

To the Editor:—Dr. Macht's interesting chapter on the History of Opium (THE JOURNAL, Feb. 6, 1915, p. 477) recalled to my mind the rimed couplets given below. These were found written on a fly leaf of Wood and Bache's United States Dispensatory (Ed. 2, 1834) and are in the handwriting of my grandfather, Daniel R. Bailey, who graduated from the University of Pennsylvania in 1837. They were probably in common use among the students of that day and may have been published before.

OPIUM

This grand specific eases pain,
Produces sweat when dry the skin,
In doses small the frame excites
And puts to flight those sleepless nights.
When painful cough excites the breast
'Twill pain allay and cough arrest;
If morbid products need restrain,
We'd give it then in half a grain;
But if hard pain we would assuage,
Or calm the maniac in his rage,
We'd deal it then with liberal hand,
One grain to three the case demands;
But if we wish immediate rest,
We must procure the pure and best;
That species which from Smyrna comes
Is far the best of Thebaic gums;
'Tis large and soft, of grayish brown,
And covered with a leafy down.
The tincture, powder or the pill
Most indications will fulfil;
For weakly nurslings at the breast
The elixir proves to be the best;
But if phlogosis rage within
And burning heat affect the skin,
The salts of morphia, it is plain,
Would less excite the heart and brain.

CLIFFORD B. FARR, M.D., Philadelphia.

LITERATURE ON ELECTRIC SHOCKS

To the Editor:—Please inform me if there is any recent literature or publication on the subject of electric shocks.

W. F. PLUMLEY, M.D., Rochester, N. Y.

ANSWER.—In THE JOURNAL, March 15, 1913, p. 851, there was published a list of references on this subject. The following articles are subsequent to this list:

Brocx, D.: Fatal Electric Accidents, *Nederlandsch Tijdschr. v. Geneesk.*, 1914, lviii, No. 5.

First Aid to Those Overcome by Mine Gases, Electric Shock, etc., Miscellany, THE JOURNAL, Nov. 14, 1914, p. 1784.

Groler: Treatment of Heartstroke, Sunstroke and Electric Injuries, *Deutsch. med. Wchnschr.*, Jan. 1, 1914; abstr., THE JOURNAL, Feb. 14, 1914, p. 578.

Stewart, P.: Case of Hysterical Monoplegia Following Electric Shock, *Brit. Med. Jour.*, Dec. 20, 1913.

Report of Committees on Resuscitation from Electric Shock and Resuscitation from Mine Gases, Proceedings of the Conference of the American Medical Association on Medical Legislation, abstr., THE JOURNAL, Feb. 28, 1914, p. 724.

Stewart, P.: Case of Hysterical Monoplegia Following Electric Shock, *Brit. Med. Jour.*, March 7, 1914.

Witthaus, R. A., and Becker, T. C.: Medical Jurisprudence, Forensic Medicine and Toxicology, Vol. 2, New York, William Wood & Co., $6.

Work of Commission on Electric Shock, Current Comment, THE JOURNAL, Nov. 1, 1913, p. 1637.

Jellinek, S.: Electric Accidents, *Wien. klin. Wchnschr.*, Oct. 30, 1913.

Fisch, C. F.: Electric Accidents, *Wien. klin. Wchnschr.*, Sept. 4, 1913; abstr., THE JOURNAL, Oct. 11, 1913, p. 1417.

CORONER'S DUTY IN ALASKA

To the Editor:—1. What constitutes a coroner's case in Alaska?

2. Must each district have a coroner's physician, and is there any provision made for one?

3. Can a person be buried without a physician's death certificate or burial permit?

H. E. AURINGER, M.D., Flat, Alaska.

ANSWER.—1. In Alaska a coroner can be appointed either by the President of the United States or by the judge of the Alaska district court. In the case of any sudden death or

injury which is apparently due to crime or is a suicide or an attempted suicide, the coroner must investigate the circumstances and inquire by jury into the cause thereof.

30. Statutes at Large, Section 1325, et seq.

2. There seems to be no requirement that districts must have a coroner's physician, but it is provided that witnesses must be subpenaed to appear before the coroner's jury, and these witnesses must include a physician who is to inspect the body and give his opinion as to the cause of death. This serves the same purpose.

30. Statutes at Large, Section 1325, et seq.

3. There seems to be no specific provision in this regard. Doubtless the President or the officials under him in the executive department of the government, or even certain Alaska officials, could by rule require such. The powers as vested in the executive of the United States under the Public Health Service law would seem to warrant this conclusion. Application to the Public Health Service at Washington, D. C., would determine this point.

INK FOR WRITING ON GLASS

To the Editor:—Please give me a formula for a water-proof solution with which I can write on glass bottles and which will not rub off when carried loose in grip. White color. Black also.

R. L., Sidney, Iowa.

ANSWER.—A good ink for writing on glass may be made as follows:

White Ink: Mix 1 part Chinese white (water-color pigment) or barium sulphate with 3 to 4 parts sodium silicate solution (water glass). The sodium silicate solution should have the consistency of glycerin.

Black Ink: Mix 1 part liquid Chinese ink (or Higgin's Eternal Ink, or some similar carbon ink) with 2 parts sodium silicate solution.

Apply with an ordinary steel pen. The ink will dry in fifteen minutes and will withstand water. It may be readily removed by scraping with a knife.

ARTICLES ON ECZEMA

To the Editor:—I wish to get the names of authors and titles of papers bearing on the subject of eczema, its diagnosis and differentiations.

J. M. S.

ANSWER.—The following is a list of references on this subject:

Knowles, F. C.: External Origin of Eczema, *Jour. Cutan. Dis.*, January, 1913; abstr., THE JOURNAL, Jan. 25, 1913, p. 319.

Findlay, L., and Watson, H. F.: Eczema Oris as Manifestation of Congenital Syphilis, *Lancet*, London, March 29, 1913; abstr., THE JOURNAL, April 26, 1913, p. 1330.

Davis, H.: Infantile Eczema, *Brit. Med. Jour.*, Oct. 10, 1914.

Adamson, H. G.: Eczema and Some Eruptions Mistaken for Eczema, *Clin. Jour.*, London, Feb. 26, 1913.

Johnston, J. C.: Causation of Eczema, *Jour. Cutan. Dis.*, January, 1913; abstr., THE JOURNAL, Jan. 25, 1913, p. 319.

Gaskill, H. K.: Bromid Eruption Simulating Blastomycosis or Eczema, THE JOURNAL, March 21, 1914, p. 912.

Montgomery, D. W., and Culver, G. D.: Eczema Marginatum of Toes, THE JOURNAL, April 4, 1914, p. 1076.

Simpson, C. A.: Infantile Eczema, THE JOURNAL, April 6, 1912, p. 995.

Eczema and Occupation, Queries and Minor Notes, THE JOURNAL, May 18, 1912, p. 1527.

Ravogli, A.: Eczema as Seen by General Practitioner, abstr., THE JOURNAL, Nov. 16, 1912, p. 1819.

Charbonneau, E. G.: High Frequency Currents in Eczema, *New York Med. Jour.*, October, 1912.

Towle, H. P., and Talbot, F. B.: Infantile Eczema and Indigestion, *Am. Jour. Dis. Child.*, October, 1912, p. 219; abstr., THE JOURNAL, Oct. 19, 1912, p. 1487.

Cunningham, W. P.: Eczema Descendens, *New York Med. Jour.*, June 28, 1913.

Montgomery, D. W., and Culver, G. D.: Differential Diagnosis of Palmar Syphilis, Eczema and Psoriasis, *California State Jour. Med.*, November, 1913.

Finkelstein, H.: Dietetic Treatment of Eczema in Children, *Ztschr. f. Kinderh.*, 1913, viii, No. 1; abstr., THE JOURNAL, July 19, 1913, p. 232.

Hazen, H. H.: Acute Eczema Early in Course of Syphilis, *Southern Med. Jour.*, Oct. 1, 1913.

Schkarin, A.: Eczema as an Expression of Exudative Diathesis in Infants, *Jahrb. f. Kinderh.*, August, 1913.

Mautner, F.: No Specific Skin Reaction in Eczematous Children, *Ztschr. f. Kinderh.*, 1913, viii, No. 6.

Hichens, P. S.: Total Cases of Eczema in Children, *Brit. Journal Child. Dis.*, September, 1913.

Jannison, W. A.: Eczema: Its Prevention and Treatment, *Edinburgh Med. Jour.*, November, 1913.

Chipman, E. D.: Basic Principles in Eczema, *California State Jour. Med.*, May, 1914.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, March 8-9. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven. Homeopathic; New Haven, March 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Eclectic: New Haven, March 9. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Homeopathic, Jacksonville, March 5, Sec., Dr. C. W. Johnson, 33 E. Monroe St., Jacksonville.

IDAHO: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.

MAINE: Portland, March 9-10. Sec., Dr. F. W. Searle, 776 Congress Street.

MASSACHUSETTS: Boston, March 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

MONTANA: Helena, April 5. Sec., Dr. William C. Riddell, Helena.

RHODE ISLAND: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

UTAH: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Ohio Reciprocity Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports that 28 candidates were licensed through reciprocity from Oct. 22 to Nov. 18, 1914. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1912)	Kansas
Hahnemann Medical College and Hospital, Chicago	(1913)	Illinois
Rush Medical College	(1913)	Illinois
Indiana University	(1912)	Indiana
Physio-Medical College of Indiana	(1902)	Indiana
Baltimore Medical College	(1903)	Indiana
College of Phys. and Surgs., Baltimore	(1907) (1912,2)	W. Virginia
Detroit College of Medicine and Surgery	(1914)	Michigan
University of Michigan, Dept. of Med. and Surg.	(1901) (1914,3)	Indiana; Michigan.
University of Michigan Homeopathic Medical College	(1906) (1912) (1913) (1914)	Michigan.
St. Louis University	(1913)	Missouri
New York Homeo. Med. Coll. and Flower Hosp.	(1903)	New York
Cleveland Homeopathic Medical College	(1905)	Michigan
Starling Medical College	(1897)	W. Virginia
Jefferson Medical College	(1906) (1913)	Penna.
University of Pennsylvania	(1911) (1913)	Penna.
University of Pittsburgh	(1913)	Penna.
Medical College of Virginia	(1909)	Virginia

Arkansas Reciprocity Report

Dr. W. S. Stewart, secretary of the State Medical Board of the Arkansas Medical Society, reports that 17 more candidates were licensed in Arkansas, through reciprocity, during 1914. The following colleges were represented:

College	Year Grad.	Reciprocity with
University of Alabama	(1911)	Mississippi
George Washington University	(1912)	Oklahoma
Georgia College of Eclectic Med. and Surg.	(1908)	Georgia
University of Georgia	(1906)	Georgia
Chicago Coll. of Med. and Surg.	(1910)	Illinois
Rush Medical College	(1884)	Indiana
Indiana University	(1909)	Indiana
Hospital College of Medicine, Louisville	(1905)	Kentucky
Louisville and Hospital Medical College	(1908, 2)	Kentucky
Tulane University of Louisiana	(1910)	Louisiana (1913) Mississippi
University Medical College, Kansas City	(1908)	Oklahoma
Chattanooga Medical College	(1907)	Oklahoma
Meharry Medical College	(1914)	Oklahoma
University of Tennessee	(1900)	Oklahoma
Vanderbilt University	(1886)	Oklahoma

Minnesota October Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Oct. 6-8, 1914. The total number of subjects examined in was 17; total number

of question asked, 80; percentage required to pass, 75. The total number of candidates examined was 9, of whom 8 passed and 1 failed. Ten candidates were licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Northwestern University	(1914)	90.1
Rush Medical College	(1913) 92.9; (1914) 82.4, 86.3, 87.1,	94.1
University of Minnesota	(1914)	89.3
University of Pennsylvania	(1914)	85.9
FAILED		
Milwaukee Medical College	(1909)	67.1

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
George Washington University	(1910)	Dist. Colum.
College of Phys. and Surgs., Chicago	(1910) (1912)	Illinois
Northwestern University	(1911)	Illinois
State University of Iowa, College of Medicine	(1901)	Iowa
Harvard University	(1914)	Wisconsin
Western University	(1913) (1914)	Ohio
Milwaukee Medical College	(1903)	N. Dakota
Queen's University	(1892)	Iowa

Kentucky December Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 16-18, 1914. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 13, of whom 9 passed and 4 failed. Two candidates were given reregistration licenses. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of Louisville	(1914)	83
College of Phys. and Surgs., Baltimore	(1914)	85
Johns Hopkins University	(1911)	79
Syracuse University	(1911)	90
Ohio-Miami Medical College	(1914)	83
Lincoln Memorial University	(1914)	80
Meharry Medical College	(1912)	78
University of Tennessee	(1906)	83
Vanderbilt University	(1914)	87
FAILED		
Bennett Medical College	(1913)	67
Louisville National Medical College	(1912)	67
University of Louisville	(1910)	54
Vanderbilt University	(1913)	70

Pennsylvania December Report

Dr. N. C. Schaeffer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the written examination held at Philadelphia, Dec. 1-3, 1914. The total number of subjects examined in was 5; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 43, of whom 31 passed and 12 failed. The following colleges were represented:

PASSED			
College	Year Grad.		Per Cent.
Georgetown University	(1907)	(1913)	2
Bennett Medical College		(1913)	2
University of Louisville		(1911)	1
Maryland Medical College	(1912,3)	(1913,1)	4
Harvard University	(1891)	(1908)	2
Cornell University		(1911)	1
Fordham University		(1912)	1
New York Homeopathic Coll. and Flower Hosp.		(1913)	1
University and Bellevue Hosp. Med. Coll.		(1913)	1
Jefferson Medical College	(1912,1)	(1913,4) (1914,1)	6
Medico-Chirurgical Coll. of Phila.	(1911,1)	(1913,3) (1914,1)	5
University of Pennsylvania	(1911)	(1913,2)	3
Woman's Medical College of Philadelphia		(1912)	1
National University, Athens		(1910)	1
FAILED			
University of Louisville	(1889)*; (1911) 69.2; (1912)		64.8
Baltimore Medical College		(1913)	72.4
Maryland Medical College	(1905)*; (1912) 67; (1913) 67.2, 68.8,		69.4
Harvard University		(1913)	73
Tufts College Medical School		(1912)	71.6
Barnes Medical College		(1899)	69.6

* No grade given.

Book Notices

WITH SABRE AND SCALPEL. The Autobiography of a Soldier and Surgeon. By John Allan Wyeth, M.D., LL.D. Cloth. Price, $3 net. Pp. 535, with illustrations. New York: Harper & Brothers, 1914.

"The chief purpose of this volume is to record from personal observation something of the social, economic and political conditions which prevailed in the South before, during and immediately after the Civil War." This is the introductory sentence of the introduction. The book is not strictly an autobiography; one is compelled to refer to a brief biography, in the form of an appendix, to learn even when and where the author was born. In the body of the book Dr. Wyeth speaks of visiting Dr. J. Marion Sims, in Paris, "at which time I met for the first time his youngest daughter, named Florence Nightingale"; but he does not say that she later became Mrs. John A. Wyeth. This, however, one learns from the appendix. There is a lack of consecutiveness; in one of the first chapters, of four or five pages, we are carried from the time when, as a boy of 4, he began to ride horseback, to the tragedies of the war, when he lost his favorite horse, "Fanny." In the next chapter we again are carried back to his boyhood days where we are told about "Major," king among dogs, and the battles he had won, and forward again to the Civil War. But this is not a fault, although the method has resulted in some repetition. These chapters of experience are candidly and unaffectedly written, are full of human interest, and are more interesting than would be a formal, consecutive autobiography.

Dr. Wyeth's description of the social and economic conditions in the South as they existed in his boyhood days is startling in the revelation as to what changes can take place in the span of one human life. His discussion of the slavery question is conservative and dispassionate—much more so than could have been the case if written fifty years ago. He asserts that there was a period in the decade from 1830 to 1840 when the solution of the problem was possible, when there were emancipation societies organized in the South. He is convinced that if "the conservative and better portion" of the North "had united in earnest and friendly cooperation with their brothers of the South" the tragedy of the rebellion would never have been enacted. The author was less than 17 years of age when he became an active participant in the war. In those chapters devoted to the Civil War he graphically describes the life and experience of a private soldier in the army, in battles and in prison. His prison experience was in Camp Morton, Indianapolis, where he was sent, Oct. 15, 1863, when only 18, and where he remained until February, 1865. For three years after the war, he was engaged in farming, contracting, etc., and in 1867 took up the study of medicine, graduating in 1869. But he did not practice long. His first fatal case convinced him that he was not yet prepared; so two months after he put up the shingle he pulled it down and went to Arkansas to make money to take up postgraduate work. Later he went to New York, graduated from Bellevue in 1873, and entered on his professional life's work.

Part II is devoted to medical matters, and is the part that will be of special interest to the medical, rather than to the lay, reader. In this Dr. Wyeth discusses the founding of the polyclinic, refers to his work on the carotid artery, to his bloodless hip-joint and shoulder operations, and to other surgical and professional matters.

Few men have had such a varied experience; here is the list of his occupations, as outlined in the book: farmer, woodsman, Confederate soldier, cotton planter, cattle buyer, medical student, river pilot, building contractor, land speculator and telegraph operator. On top of this came his medical career, in which he has made a name comparable with any in the annals of American surgery. Chapters from the life of such a man, presenting his experiences, adventures and observations, are indeed welcome. The book is not "dry"; even when discussing slavery and the war, and when telling of the obstacles that were met and overcome, there is continually being interjected some amusing incident, some story to amuse and enlighten the reader.

THE ANATOMY OF THE HUMAN SKELETON. By J. Ernest Frazer, F.R.C.S., Lecturer on Anatomy in the Medical School of St. Mary's Hospital. Cloth. Price, $6.50. Pp. 274, with 219 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This book deals with the whole skeleton—bones, joints and ligaments—together with the other structures immediately associated. The point of view is that of a mechanician studying a machine and the way it works—the harmonious cooperation of all the parts, each adapted to the other and each influencing the other. The bones are not considered as individual structures, isolated from others and laid each by itself on the table, but "each part of the skeleton has been used as a peg on which to hang a consideration of the neighboring structures." It is the full-grown machine which is studied, and this is done with care and thoroughness. The emphasis is laid on the mechanical and physical factors of its working. Each phase of action is considered and profusely illustrated. Nearly all the illustrations are from original dissections, and are mostly colored. They show well the various phases of activity of each part of the skeleton, always as it exists in the body surrounded by the other structures which work with it. These illustrations are excellent. They bring out interesting relations not often noted, and constitute a valuable contribution to anatomic illustration. The influence of the associated structures on the form and the working of the skeletal structures is clearly shown. Thus each bone is shown to have a primitive form due to inheritance and ontogenetic development, and also a surface molding due to the action on it of muscles and to a lesser extent of vessels, nerves, etc. The book is evidently the product of much personal work and study by the author directly over the structures themselves. It is not a study of the literature but of the things. It is original. There are no references to the literature in the whole work. In some respects it is rather to be regretted that the literature is not considered more carefully. In the brief references to embryology and evolution the author has omitted from consideration some interesting and important contributions. Thus, in his reference to the development of the acetabular cavity, page 123, he takes no account of the os acetabuli, discovered by Albinus. A consideration of this bone, and of the excellent papers of Rambaud, of Renault and of Amantini, would have modified greatly his explanation of the existence of the ligamentum teres femoris. And in his account of the "hypothetical" evolution of paired limbs in vertebrates, beginning on page 61, there is no consideration of the theory of Gegenbaur, nor any mention of the continuous lateral fin fold theory of Thacher, Balfour and Mivart. From the point of view of embryology, comparative anatomy and evolution, the student will get more from the many classic books and papers on those subjects. The author of this book does not present things from that aspect. But students, physicians and especially surgeons, who wish to understand thoroughly the working of the skeletal machine, and the way in which not only the form of its parts but also its mechanical qualities of strength, elasticity, etc., contribute to the efficient working of the body as a whole, will find in this book much that is interesting and valuable.

LABORATORY MANUAL FOR THE DETECTION OF POISONS AND POWERFUL DRUGS. By Dr. Wilhelm Autenrieth, Professor in the University of Freiburg. Authorized Translation of the Fourth German edition by William H. Warren, Ph.D., Professor of Chemistry in Wheaton College. Cloth. Price, $2 net. Pp. 320. Philadelphia: P. Blakiston's Son & Co., 1915.

The present edition presents the subject in a handy volume, and describes the systematic detection of poisons in a clear and sufficiently exhaustive manner. Quantitative methods are given, and some of the more recent biologic tests find their place among the older standard methods. Among these may be mentioned the test for arsenic by growth of *Penicillium brevicaule* and the serum test for human blood. Tests for a considerable number of alkaloidal substances, not usually included as poisons, are described, and the modern synthetics are quite comprehensively treated. A feature which will be attractive to students of pharmacy is the inclusion of a number of assay processes from the German Pharmacopeia. The method of Reinsch, which is very convenient as a preliminary test for the use of physicians, receives no mention. The descriptions and directions for the various processes are clear and concise. Explanations of the theoretical aspects of the various processes are given in small type. This makes the book of some service in the teaching of general chemistry. The work of the translator has been well done—the literary style is good. The translator has introduced a somewhat fuller discussion of the subject of "normal arsenic" than was given in the original. He has also described a modification of the Gutzeit method for the quantitative estimation of arsenic as worked out by Professor Sanger. It must be remembered that this is a laboratory manual, and hence presents none of the medicolegal considerations which are of such importance to the physician. A few pages devoted to plain directions for the procedure in cases of poisoning with regard to antidotal treatment, *intra-vitam* tests of urine, stomach contents, etc., and the collection and transmission of materials to the analyst, would greatly enhance the value of the work.

Miscellany

Poisoning by Tetrachlorethane

The progress of industry is always disclosing new dangers for the workers. A new form of poisoning was brought to light at an inquest, held in London, on a French-polisher employed in an aeroplane factory, whose duty was to apply to parts of aeroplanes a varnish bearing the trade name of Emaillite. He complained at times that the smell of the material affected him. The witnesses agreed that the fumes left an unpleasant taste in the mouth, especially in the morning. The deceased developed jaundice, and attributed it to the vapor from the varnish. He had begun to work at the factory in August, when pressure of work, owing to the war, caused a large increase in the output of the factory and in the staff. He left about the middle of October, when he looked very ill. About this time, also other workmen developed jaundice. It was noticed by the smell that the vapor from the varnish hung about in invisible clouds, so that one would walk into a patch of it quite a long distance from the place where it was being applied; also that the smell was much less noticeable at higher levels. The building was large and without partitions. The material was applied in one corner of the premises. Dr. W. H. Willcox, physician to St. Mary's Hospital, stated in evidence that he attended the deceased at the hospital for jaundice, nausea, and sickness mornings. There was slight pain in the upper abdomen. The liver was enlarged, but there was no sign of anemia, or alcoholic excess. He analyzed the varnish and found it was a mixture of methylated spirit, acetone, benzene and tetrachlorethane. He distilled the material, and found that the bulk of the liquid distilled over at between 63 and 80 C. (145.4 and 176 F.). It was volatile, and quickly evaporated, yielding a vapor 1.91 times heavier than air. On visiting the air-craft work, he was much struck by the way in which the vapors hung about even at a distance of 30 yards from where the material was being used. He placed white rats on perforated platforms in glass vessels, each containing a different constituent of the material and one the material itself, for eight hours a day for a week. After being kept in the vapor of the varnish and of the tetrachlorethane, the rats became drowsy and remained so after removal for some little time. After an hour or so they fed and became active, but did not gain in weight. In the acetone vapor the animal was drowsy, but gained in weight as the week advanced, and became normal at once when removed from the vapor. The same phenomena occurred in regard to the benzene, but in the methylated spirit the animal was not affected. After seven days' treatment the animals were killed. The rat kept in the tetrachlorethane vapor showed marked changes in the liver, signs of fatty degeneration and bile staining. The rat kept in the vapor of the material itself showed similar but less marked liver

changes. In the other rats no changes were present to the naked eye. Microscopic examination of the rat exposed to tetrachlorethane showed fatty degeneration and bile staining and cloudy swelling in the liver and kidneys. Dr. Willcox recalled the case in which carbon tetrachlorid used as a hair wash proved fatal in London in 1909. The substance now under consideration was one of the same series and was a powerful poison. He had investigated other cases at the factory. Certain symptoms were common to all: drowsiness while at work, loss of appetite, nausea, vomiting, headache, a peculiar taste and irritation at the back of the throat, jaundice, with pale stools and high-colored urine, constipation generally, and no anemia. In a few cases the patients became delirious and severely ill. In one case there was conjunctivitis. In several cases the symptoms disappeared when the patient was absent from work, but on resuming they returned speedily in an aggravated form. In one case, a very severe one, the patient was very ill at the present time—there was much ascites, owing to cirrhosis of the liver. He found several workers in the factory suffering from unmistakable signs of the onset of the poisoning. They had loss of appetite, nausea and a tendency to sleepiness. He had no doubt that the illness could be entirely avoided by proper arrangements at the factory to get rid of the vapor. Two deaths were discovered at a later inquest also related to this cause. In one the subject was a young woman employed in an aeroplane factory who died from toxic jaundice with uremic symptoms, and the other subject was a girl of 19 who had intense jaundice and toxic degeneration of the liver was found. The government is taking energetic measures to prevent further accidents from this cause.

The Doctor's Bag

Perhaps nothing will better illustrate the change that has occurred in the practice of medicine during the past twenty-five or thirty years than to note the sort of appliances carried by the country doctor now as compared with former times. During the eighties the manufacturing pharmacists began the plan of supplying doctors, whether practicing in the city or country, with all their drugs in tablet form. When active drugs are used and the tablet contains but a single ingredient, or at most two or three, whose combination has a recognized value, there can be very little objection to this method of dispensing, and indeed much may be said in its favor. But soon all sorts of combinations of drugs appeared. Most of these are thoroughly unscientific or inert, or contain ingredients whose action is antagonistic to each other, and in most of them no one could anticipate what their action would be. This led to exceedingly loose prescribing and caused a habit in doctors inclined to be careless or hasty of giving the patient what the doctor had with him rather than what the patient's condition required.

Most country doctors filled their emergency bags with these tablets and carried little else. Indeed, the refinements in diagnosis which we now have did not exist, and prescribing was necessarily less accurate.

Lately we looked through the bag of a country doctor who tries to practice according to modern standards, and this is what we found: two soft catheters; a pocket case containing scissors, scalpels, lances and forceps; another small case containing an electric lamp and specula for examining the ear, nose and throat, and a magnifying glass; a Tycos sphygmomanometer; a Tallqvist hemoglobin scale; a pipet for counting the white corpuscles, and another for red corpuscles, with appropriate diluting fluids for each; a number of slides for making blood smears; two blood serum tubes and two agar slants; three tubes of old tuberculin for making the von Pirquet test; a hand-ball syringe; sterile gauze; cotton and bandages; a roll of adhesive plaster; a rectal tube; needle for hypodermoclysis and for intravenous injection of fluids or for spinal puncture; an aseptic glass syringe; a syringe for exploring purposes; a tube of smallpox vaccine; needles threaded with silkworm-gut and catgut in sealed glass tubes; a pair of rubber gloves and the following drugs: a bottle of bichlorid tablets, calomel and soda tablets, headache tablets, A. S. & B. pills, assayed Tr. digitalis, Tr. iodin, a tube of sterile petrolatum, 3 ounces of alcohol and two half-pound cans of ether. This physician also carried a hypodermic syringe and a case of tablets for hypodermic use, a clinical thermometer and a Bowles stethoscope.

It will be seen from the above equipment that about all that this doctor tried to do was to make a scientific diagnosis, and then ordered from the local drug store the medicine he thought his patient required. He does not claim that it is an ideal equipment, but it was evolved by twenty-five years of practice as that which best suited his particular needs. It is subject to change as need requires, and it suits him better than a bag full of tablets that he, at least, cannot use intelligently.—The *Medical Reporter* of the Chester County (Pa.) Medical Society.

Medicolegal

Not a Waiver of Privilege

(*Nordyke & Marmon Co. vs. Whitehead (Ind.), 106 N. E. R. 867*)

The Supreme Court of Indiana says that, in this action brought by an administratrix to recover for the death of an employee of the defendant company, the defendant contended that the court erred in sustaining the plaintiff's objection to certain questions propounded to the defendant's witness, a physician who attended the decedent immediately after his injury. A son of the decedent had testified that when the physician examined his father he (the witness) was present and saw certain bruised spots on his father's body. The defendant sought to prove by the physician that no bruises were found, and the court excluded the testimony on the ground that it was privileged. It was contended by the defendant that by offering the evidence of the son the plaintiff waived the privileged character of the physician's testimony as to the same subject-matter. The supreme court cannot so hold. The rule that all facts learned by a physician while examining or conversing with a patient are to be treated as confidential is a beneficent one and one which is not to be lightly broken down. The court sees no reason to hold that the circumstances before it were sufficient to bring this case within any recognized exception to the rule stated or to create a new exception thereto.

Negligent Care by Parents and Insanitary Condition of Home of Injured Child

(*Gigoux vs. Yamhill County (Ore.), 144 Pac. R., 437*)

The Supreme Court of Oregon affirms a judgment for $1,000 damages for the death of 10-year-old Emma Gigoux, who, on Sept. 21, 1912, stepped into a hole in a bridge, causing abrasions of the skin on both sides of the leg. The court says that she was taken home, a short distance from the place of the injury, the limb washed with soap and warm water, the wounds bathed with peroxid, a mixture of glycerin and phenol (carbolic acid) applied to the injured parts, and bandages placed thereon. The little girl was thereafter frequently bathed, clean clothing exchanged for that which had been worn, and the treatment referred to was repeated each morning for about ten days, when, incrustations having formed over the abrasions, it was supposed that the wounds were properly healing. In a few days, however, blood poison set in, whereupon physicians were called; but, they being unable to effect a cure, she died of septicemia on October 5. The defendant alleged, among other things, that there was only a slight scratch and during the first ten days or so Emma, with no proper treatment of the scratch, engaged in her usual play about the premises of her parents, permitting her clothing to rub and irritate the scratch and other articles to come into contact with it, and it to become unclean and filthy, and some ten days after the accident her limb became infected and sore, and same thereafter resulted in the ail-

ment which caused her death. But there was no error in not permitting the defendant to offer testimony in support of the alleged insanitary condition of her home at the time of the accident and during her last illness. It was argued that the defendant's answer averred a new and intervening cause, but the court believes that the pleader, in the part of the defense referred to, intended to charge contributory negligence on the part of Emma's parents in failing to call a physician when she was hurt, in permitting her clothing to irritate the wounds, and in not exercising greater care in respect to the alleged insanitary conditions of the home, whereby the little girl's death resulted. As tending to uphold the latter view, counsel undertook to show that the girl's wounds might have been infected by germs when being bathed, by inquiring of Mrs. Gigoux, on cross-examination: "Did you ever boil the basin, or disinfect it in any way?" and, when an objection was sustained to the question, he said: "We are trying this case on the theory that the negligence of the parents would be an element." However, no error was committed in refusing to receive evidence of the alleged negligence of the girl's parents as to their care and treatment of her after she was injured. This action was brought by her father as the administrator of her estate.

Including the Element of Experience in Questions Asked Experts

(Chicago, I. & L. Ry. Co. vs. Gorman (Ind.), 106 N. E. R. 897)

The Appellate Court of Indiana, in affirming a judgment in favor of plaintiff Gorman for personal injuries, says that two physicians who had examined him several times after he had received the injuries, were called by him as expert medical witnesses. After they had respectively detailed the facts ascertained by such examinations, they were asked to give their professional opinions respecting the origin and nature of said injuries. Each question contained substantially the following: "From your examination of Mr. Gorman, . . . basing your answer on your experience as a medical man and the facts that you have detailed to this jury that you found existed," etc. Objection was made that the form of the question called into action the experience of the witnesses. But the court does not think there was error in that. As indicated, the witnesses were called and testified as experts. A question propounded to such an expert for the purpose of eliciting an opinion should be so framed as to require that such opinion be based on facts testified to by such witness, or on facts assumed hypothetically, or on both classes of facts. Here no facts were assumed hypothetically, and since each of the witnesses was required to base his opinion on facts testified to by him, it was conceded that the questions were correct in form, except it be on account of the element of experience, included therein. It was argued that such element in such questions brings them under the condemnation of the rule announced in Horne vs. Williams, 12 Ind. 324, to the effect that an expert medical witness may not give in evidence the particulars of his own private practice. The court does not so understand the questions here. Experience is a very potent factor in the process by which a person becomes an expert in any line. An expert, as the word implies, is one having experience. While, strictly speaking, it may be true that the word "experience" may mean the course or process by which one attains knowledge and wisdom, yet the former term is frequently used as the equivalent of the latter terms. The word "experience" implies skill, facility, or practical wisdom, gained by personal knowledge, feeling or action. The possession of practical wisdom is an essential in order that one may be an expert. The expert submits the facts in a particular case to the scrutiny of the wisdom so acquired, and thus he gives an opinion. Any reasonable construction of the questions under consideration leads to the conclusion that by the particular feature objected to the witnesses were called on to use that particular attribute without which they would not have been experts. The court did not err in overruling the objections to the questions.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, San Francisco, June 21-25.

Amer. Assn. of Pathologists and Bacteriologists, St. Louis, March 26-27.
Medical Society of the Missouri Valley, Omaha, March 25-26.
Tennessee State Medical Association, Nashville, April 13-15.

CONFERENCE ON HEALTH LEGISLATION

Held in Chicago, Feb. 15, 1915

The Eleventh Annual Conference on Medical Legislation, under the auspices of the Council on Health and Public Instruction of the American Medical Association, was held February 15.

The chairman, DR. HENRY B. FAVILL, Chicago, said in part: The purposes of the administrative forces in this department of the American Medical Association can be summed up under the general idea of forming and molding public opinion. Public opinion with us, as in every great movement, must be regarded as fundamental. We have no authoritative American Medical Association policy. The Association has no hard-and-fast program. It is a mobile organization so far as concerns its definite achievements. Its relationship to the state organizations and to the public is one that is purely informal and advisory in character. Our own affairs, so far as they come within the range of effective activities, are of a very indefinite type. I say this the more forcibly because it is desirable at this time and at every time to emphasize the fact that the American Medical Association is not undertaking to dominate either its own membership or its public relationship. We have no desire or power to dictate anything in the way of strictly medical affairs or medico-public affairs, and our position in the matter is and must continue to be strictly advisory. The question is, Why do we concern ourselves with the matter? And the answer is, Because there is a moral obligation on us to concern ourselves with the matter just to the extent that we are fit and equipped so to do. We have definite knowledge in some directions. We have mature, well-thought-out conceptions of our public relationships. We have a very clear understanding in many directions regarding public weal and public interest. So far as we have these conceptions more than people outside of the profession, so far are we under obligation to make effective what we know and believe. It is for this reason that we go on, under all sorts of discouragements, under all sorts of discrediting, trying, not to drive, but rather to lead the public to a strong, intelligent, cooperative action with us, looking to its own reconstruction on physical lines for its own protection.

Report of the Secretary

DR. FREDERICK R. GREEN, Chicago: The rapidly increasing public interest in health topics, the necessity of rational, practicable legislation for the protection of the public health, and the manifest importance of avoiding premature, immature and unwise legislative experiments in this field, all unite to emphasize the importance and the rapidly growing necessity of a more intelligent and scientific method of handling these subjects. The question which we must answer is whether or not the medical profession is qualified or will qualify to assume leadership in this field. If we cannot or will not, then we cannot complain if other forces take the lead which should belong to us. Competent leadership in any field involves two factors: first, accurate knowledge of the situation, and second, definite plans for its improvement. Let me particularly emphasize in this connection the necessity of physicians as a class recognizing the importance of medical sociology. The forty years which cover the development of modern medicine have been so crowded with efforts to increase our scientific knowledge that practically all of the attention and the best minds of the profession have been devoted to this portion of the field. In the old days when the practice of medicine was limited largely to the personal

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relations between physician and patient, the neglect of medical sociology involved no serious consequences. To-day, however, with the rapidly growing importance of the community and the diminishing importance of the individual, the necessity of careful, able, scientific study of this subject is becoming apparent.

The subjects for discussion at this conference are four in number, on each of which a bill has been drafted as a basis for discussion. Two of these are incidental and two are fundamental. These bills are not to be regarded as in any sense final or authoritative, but rather as suggestions and for criticism.

The report of the Committee on the Regulation of Medical Expert Testimony in insanity cases will show that the bill which will be presented is intended as a demonstration of a general bill which can be applied to other classes of cases.

The bill on the prevention of infant blindness was drafted by the old committee on this subject which preceded the Committee on Conservation of Vision. It will also be submitted for discussion and criticism.

Report of Committee on Medical Expert Testimony

PROF. E. R. KEEDY, Northwestern University Law School, Chicago, presented the report of this committee, submitting an act providing a method for obtaining and presenting in court evidence regarding the insanity of the defendant in criminal cases.[1]

DISCUSSION

DR. HAROLD N. MOYER, Chicago: This bill is more extensive in its applications and in what will prove to be its ultimate usefulness than a greater effort would have been to cover the field of expert testimony. As to the scope of the bill, it refers only to one narrow phase of expert medical testimony, namely, that which governs the admission of this testimony in criminal cases in which insanity is raised as a defense. I believe that narrowing of it is an exceedingly wise provision from a practical standpoint. There are two reasons why it should be limited. One is, it is easy to get such a bill enacted, whereas it would be practically impossible to get through any legislature a bill as broad as we could draw it. The other reason is that its practical application will aid in its passage. The bill establishes certain definite principles, and eventually, if this bill is adopted in any state, its usefulness, its simplicity, will lead step by step in its application to other fields of litigation.

PROF. E. R. KEEDY, Chicago: This matter of expert medical testimony has not only been worked on by this committee of your Council, but by a larger committee of the American Institute of Criminal Law, of which two members of your committee, Dr. Moyer and myself, are members, so that in this bill we have presented the results of the labors of the two committees extending over a period of three years. The bill has already been presented to the American Institute of Criminal Law and unanimously approved by that body. After further consideration, we decided as a practical legislative matter that it would be wiser to confine the bill to insanity and testimony in criminal cases alone, and that is the form in which the bill has been presented to you. The only section of this bill as drawn regarding which we have any doubt as to its constitutionality is Section 2. Some states may hold that it is unconstitutional, although in other states it would be upheld as constitutional, as in Illinois. However, there is great difference of opinion, and that is one of the things which is being considered now by this committee and by members of the legislature who are going to handle the bill in the Illinois Legislature.

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich: Is it not true that in certain states Section 1 of this bill has been adopted and has been declared unconstitutional on the ground that it gives to the expert or experts appointed by the court too much authority? That was the case, if I am not mistaken, in Michigan.

1. Copies of the bills discussed can be secured from the Council on Health and Public Instruction, American Medical Association, 535 North Dearborn Street, Chicago.

PROF. E. R. KEEDY, Chicago: Yes, in Michigan, and the statute was declared unconstitutional on two grounds, one of which was that it violated a clause in the constitution which states that court judges have no right to summon witnesses at common law, as it would give those summoned by the court prestige over those summoned by the parties involved. The other ground on which the statute was held unconstitutional was that it failed to provide the giving of notice to the council for both sides that such witnesses had been appointed.

DR. S. L. JEPSON, Wheeling, W. Va.: Is it not true that, according to Section 1 of this bill, the court is under obligation to award fees to experts?

PROF. E. R. KEEDY, Chicago: That is true. This bill says that "the witnesses summoned by the judge shall be allowed such fees as in the discretion of the judge seem just and reasonable, having regard to the services performed by the witnesses." While that is not satisfactory for the purpose of securing the best witnesses, we know as a fact that experts who are summoned by the parties involved receive more than ordinary witness fees, so unless there was such a provision, the court would not award the fee. There are provisions for the compensation of witnesses to be fixed by the court and payable out of the county or state treasury, and no question has been raised as to the constitutionality of such sections.

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: This law was in effect in Michigan from 1905 up to 1909, and we boasted that we were the only state in the Union that had a decent law concerning expert testimony. Both doctors and lawyers were well pleased with the law. I gave expert testimony a great many times under the law, and the whole atmosphere of the courtroom was different from what it was in other states at that time where I also gave testimony, and so we were proud of Michigan. When the Supreme Court declared it unconstitutional, that decision met the disapproval of doctors and lawyers, and so even in Michigan there is room for improvement in supreme courts.

PROF. E. R. KEEDY, Chicago: The only instance wherein a definite proposition was made was in Massachusetts. A bill was introduced into the legislature there which provided for and stipulated exactly what the requirements of an alienist should be. He should be a graduate of a recognized medical school, according to the State Board of Examiners in that state, and he should have so many years of clinical experience and so many years connection with a hospital. That bill failed to pass, and I think it would have been unwise to pass it. Your committee felt helpless in the matter of proposing a test. There are certain powers given the court in this matter, and although the jury may pass on the credibility of witnesses, the question of qualification itself lies in the hands of the court.

JUDGE ALBERT C. BARNES, Chicago: This bill brings the two professions together on common ground. We recognize that the complaint has been made for a long time that in the presentation of a case in court there is very little opportunity for the expression of medical theory. Perhaps the medical profession has lost sight of a very important fact, that the alienist is not consulted in court as a family physician. If members of a family are desirous of ascertaining the mental condition of a certain member of that family, they consult an alienist, and not a jury. In the trial of cases the determination of the final fact is left to the jury, and is not to be determined by the opinions of the medical profession. Therefore, they have to have a standard or a test by which sanity or responsibility may be determined. The complaint of the medical profession has been that they are not concerned with definitions, but only with conditions and methods of treatment. But we have to have a standard in the courts by which a jury may be guided, and that standard in this state and most states is a very simple one. It is whether or not at the time of the act the individual knew whether it was wrong, and whether he had the ability to choose to do the act or not and of controlling his conduct in accordance with that choice. That ought to be a fair enough test to apply to

anybody wandering around the streets or in society. Alienists can be expected to testify only on a subject which has many elements of uncertainty; but when actions are so frequent, especially those of prominent and wealthy citizens, there are calls for the talent of alienists. I recognize that we may expect a disagreement among alienists from the very nature of the subject, but one would be almost led to believe from practical experience in courts that either the subject was beyond the pale of scientific knowledge and lay in the realm of speculation, or those professing to have knowledge of it are not always honest and sincere in their opinion. I would not cast the blame for this situation alone on the medical profession. The lawyer is senior partner in that abuse. He is the real instigator of it. He needs a defense, and in the language of the day, he needs it bad. He needs that situation usually in that class of cases in which the defense of insanity is a great mask for an appeal to the unwritten law. Far better would it be for the law to recognize a defense of that character than that eminent members of the legal and medical professions should have engaged in a conspiracy against the truth. As to the provision in this act which provides for calling into the case disinterested witnesses, I cannot agree that it will in no way interfere with experts. I think it will; not real experts, but men who profess to be experts will hardly dare come into the case for a reward and subject themselves to the criticism of opposing and disinterested opinions that will be called into the case under the provisions of this bill. There lies a great evil, and this bill is to my mind well calculated to remove it.

I congratulate both your profession and mine that we are able at last to meet on something like common ground in regard to this important subject, and while this bill may not be perfect, it is well to set it on its way, so that it may receive such criticism and pruning as it will when it passes through legislative hands and the judgment of courts.

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: While this is the best we can probably do under the circumstances, how ridiculous it is to put up the question, Is this man insane? to twelve ignorant men. I do not care who testifies, good or bad men, or who pleads, good or bad men. The time must come when all cases of this kind will be tried before a bench of experts, men who are learned in the law and those who are learned in psychology, and they shall diagnose the case and prescribe treatment. I have no hesitancy in saying, after being an expert witness in many of the states of the Union, that in murder cases, whether the claim be insanity, whether it be poisoning, or whatever it may be, the jury system is an absolute failure. No honest man respects it; no rogue fears it. The time will come when all criminal cases will be tried by a bench of expert psychologists who will be both lawyers and doctors. What the legal and medical professions should strive for is not so much to reform the criminal as to stop his breeding. He is not the product of civilization; he is the excrement of civilization, and should be treated accordingly. I do not mean to say that we should hang him or torture him, or anything of that kind, but we should place him where he can no longer feed on the community or reproduce his kind.

DR. W. L. BEEBE, St. Cloud, Minn., moved that the conference approve the bills presented by the Committee on Expert Testimony and recommend their enactment by the legislatures of the various states, which motion was seconded and carried unanimously.

Prevention of Blindness

The secretary presented the draft of a bill for the prevention of blindness from ophthalmia neonatorum, defining ophthalmia neonatorum, designating certain powers and duties, and otherwise providing for the enforcement of the act.

DISCUSSION

PROF. ALBION W. SMALL, University of Chicago: My message to the medical profession is this: In undertaking to put your knowledge of medical cause and effect at the service of your fellow citizens, you are not simply doing that service in this particular matter of medical, sanitary and hygienic legislation, but you are using that as an illustration to teach Americans lessons they need. We need to learn how from those who are competent to teach us in matters which require expert judgment. I hope you will appreciate, therefore, my desire to applaud you as American citizens for your services, not merely as medical men, but as patriotic citizens in pointing to high standards for our American conduct.

DR. FRANK ALLPORT, Chicago: There are at the present time in the United States about 20,000 blind persons who have been made blind by ophthalmia neonatorum. There are twelve states in the Union that have laws on the subject of ophthalmia neonatorum. One of the objects in framing this bill is to have it uniform. In other matters and in other affairs, conditions are different in different states, and what might be applicable in one state would not be applicable in another; but here is a matter that should and must be the same in all states. We ought not to have in such a matter as this individual laws for individual states, but a uniform law for all states.

The use of nitrate of silver in the eyes, according to the method proposed by Credé, has reduced the occurrence of ophthalmia neonatorum from 10 per cent. in the new-born child to 1 per cent. This is a good bill. It should be passed, and I hope the members of this conference will not only recommend but assist in the passage of this bill in the various states.

DR. GEORGE B. YOUNG, Health Commissioner of Chicago: I would like to raise a point in regard to one section of this bill: While I am heartily in sympathy with the purpose of the bill, I question the expediency of the language used on account of the fact that it divides responsibility practically between everybody resident in the house in which a child happens to be born. What we want done in this matter is to narrow down the responsibility to the very narrowest limits, to put it definitely on the physician, midwife or other person immediately in charge of the infant at the time of birth or immediately after birth. If that is not done, you cannot successfully maintain prosecution.

DR. HENRY M. BRACKEN, St. Paul: All communicable diseases are controlled in Minnesota by regulations of the State Board of Health. We have regulations relating to ophthalmia neonatorum, but they are not enforced because doctors need educating. It is the doctors who are at fault, and we cannot get anything done until not only the doctors themselves get busy, but the medical schools educate the students that are to practice medicine in regard to the importance of this matter.

DR. RACHELLE S. YARROS, Chicago: The suggestion made by Dr. Young of not dividing responsibility too much is excellent. In some cases, if the provisions mentioned in this bill were carried out, the neighbors who come to see the child immediately after birth would be likewise held responsible for not reporting ophthalmia neonatorum. One important thing that should be brought out clearly in such a bill is that ophthalmia neonatorum is due to gonorrhea in many, many instances; also the importance of the use of the Credé solution should be emphasized.

DR. FRANK ALLPORT, Chicago: As to the remarks of Dr. Yarros, it has been the intention of those who are endeavoring to regulate this matter to make the people understand that all cases of sore eyes in babies or ophthalmia neonatorum are not due to gonorrhea. One reason why we have difficulty in getting cases reported is because the impression is abroad in the land that all of these cases are due to gonorrhea, and therefore people regard it as a social and family shame and mortification to report cases of this kind because it is an open admission there is gonorrhea in the family.

State Regulation of Public Health

DR. HENRY M. BRACKEN, St. Paul: In considering this problem, we should first discuss the methods that have been in vogue. These may be grouped in a general way under three heads:

1. The board which has to do purely with public health matters.

2. The state health commissioner, acting alone or with the board that has practically no responsibility.

3. The board which has charge not only of public health matters but also of the licensing of physicians.

I think it is now conceded that none of these are ideal, and that the third should in no instance be tolerated in future legislation relative to public health.

The first thing to consider in the organization of a state health department is efficiency. This can be secured only by insuring permanency in position for those engaged in the various lines of public health work. Permanency in position can be secured only by the removal of public health activities from political control.

After presenting forms of state health organization in several states and pointing out their weak and strong points, Dr. Bracken said: An ideal organization for state health activities might be somewhat as follows:

Department of Health, consisting of:

1. Public health council.
2. Commissioner of health.
3. Bureaus.
4. Divisions, if necessary.

The council might consist of five members appointed by the governor for five years, one appointment to expire each year. Such council should have authority to make rules and regulations relative to public health. There should be a penalty for failure to comply with such regulations. The council should also have authority to appoint the commissioner of health.

The commissioner of health might well be vested with the authority similar to that now given in New York state.

To aid the commissioner in carrying out his work there should be subdivisions designated as bureaus rather than as divisions. The bureau work could then be subdivided into divisions, if necessary.

If necessary, for lack of other suitable place, to add other responsibilities to a health department than those strictly belonging to it, such as the supervision of food products, labor problems, or examining boards, these could be arranged for under bureaus or divisions, as might be deemed necessary.

The secretary presented a short law creating a state board of health, approved by the Council on Health and Public Instruction; and also a bill drafted by the Medicolegal Bureau as a basis for discussion, but not yet submitted to the Council, which provides for the regulation and supervision of all persons who treat any sickness, injury, etc., of any human being for compensation within the jurisdiction of any state.

He said these were tentative bills and are not to be regarded in any way as finished products, but are submitted as a basis for discussion.

DR. HENRY B. FAVILL, Chicago: We can only get ahead in this matter by a consensus of opinion, or as nearly a consensus of opinion as may be, and out of these reports and discussions there may come some light for the administrative forces of the Council toward a more formal draft of such bills.

DR. GEORGE B. YOUNG, Chicago: As this discussion is thrown open to a general consideration of the question of public health organization in the states, I think we have to get back to certain first principles. The first thing we run up against is the growing development of the social consciousness of the people of the United States, as expressed in their reaching out and attempting to establish organizations having as the title the attractive name of "public welfare." I am one of those who believe that the public health work of the future, and the public health work of the present, have already taken the shape in which the basal developments are sociologic and not medical. The medical profession must supply men who are not only in a position to handle medical but sociologic side of questions as well —men equipped to handle all the questions which concern public welfare, or its representatives will be relegated to second place. In any organization of this kind which we are coming to, the health department must either swallow the welfare department or the welfare department must swallow the health department. As long as public health work in states or municipalities is confined to looking after the control of communicable diseases and of educating the people for the purpose of limiting the death rate from such diseases, and such related questions as sanitary engineering, which has to do with the water supply, etc., we are bound to be left behind, because the governmental agencies in this country are developing very rapidly along such lines as industrial accidents, industrial safety, occupational diseases, and the care of the child. I do not mean simply infant welfare work, or the child as a general proposition, but housing, and everything of that kind, is going on faster because it is a more popular field. It is the thing of the hour; therefore, it is going on more rapidly than public health development, even as rapidly as that is going on. We have to recognize that situation and proceed accordingly.

I want to put myself on record as believing that what we want is a single-headed health department in the state, with an advisory council, for the purpose of drafting rules and regulations susceptible of immediate interpretation and immediate enforcement as general statutory requirements passed by the legislature.

PROF. CHARLES R. HENDERSON, University of Chicago: I have read carefully the draft of the bill which is before you, and I am exceedingly delighted with the fundamental idea in it. I want to point out how exceedingly important the principles contained in this bill are in other matters. When we are trying to improve public service in any line we have the choice of having factional partisan politics to determine for us, or accept the principle which is at the basis of the bill offered here. Men who are learned in medical science should not only be the advisers but they should be in control. For the first time in the history of the world in the Panama zone and in some other parts of the world medical men have not only had advisory power, but administrative power, and we see what splendid results they have given forth, developing not only great medical skill but a very high degree of administrative skill.

I congratulate you on the formulation of this bill. It seems sensible. It may need some revision at the hands of lawyers or doctors, but it points in the right direction, and I believe your meeting here will be a great blessing for our citizens and help to mark some steps forward in the great way to progress.

DR. H. B. HEMENWAY, Evanston, Ill.: I want to protest against the board idea in public health work. When the United States Constitution was formed, the framers of it considered the matter of multiple executives and decided against it, and with good reasons, as set forth by Justice Storey, namely, that when you have multiplicity in executives you have lack of efficiency, you have slowness of action, and you have no responsibility. Responsibility is so divided you can never find it; consequently a board of health, strictly speaking, has no legislative authority.

DR. JOHN A. ROBISON, Chicago, outlined a proposed bill that the Illinois Efficiency and Economy Committee proposes to introduce into the legislature, and explained the different sections of it.

DR. R. W. CORWIN, Pueblo, Colo.: The greatest obstacle we have to meet in public health matters is the proper enforcement of our laws. What is to be done to improve conditions? Educate the people. How can we teach the people? Until they are taught and understand and learn the importance of carrying out laws, they will not and cannot be expected to obey. For some years I have been engaged in this work, and I find we must educate the people before we can expect them to comply with our requests.

DR. WALTER L. BIERRING, Des Moines, Iowa: The Iowa organization of the board of health, which is similar to the one that has been proposed to-day, has been in force for two years, and the governor in his inaugural message referred to it as the most efficient in the history of the state.

DR. J. M. BALDY, Philadelphia: In administering your law put it up to the people. If they see it is not for your own benefit, they will accept it, and the fact that it is put up to them will educate them. Instead of wasting your energy on getting new laws, put your energies into getting administrators with courage and backbone who will administer the laws.

DR. R. O. BEARD, Minneapolis: Medical men have been the directors of public health work in the past because they were the only men who knew anything about public health matters; but the time has come when other people than the men of medicine know a great deal about public health matters, and public health has become a sociologic and economic problem as well as medical problem.

DR. C. E. CANTRELL, Greeneville, Tex.: I think the people of the different states of the Union are pretty well of one mind, namely, they need an executive head to a health department, and that executive head needs an advisory board. We have that down in Texas, and we put everything on the statute books that we can agree on.

DR. HENRY M. BRACKEN, St. Paul: I am pleased with the opposition taken by Dr. Young relative to public welfare. Some of us have been preaching that doctrine for a long time. It is hard to get in touch with people outside of the medical profession. I hope there will be a possibility for health workers to get in closer touch with economists.

DR. HENRY B. FAVILL, Chicago: It is a great disappointment to the conference to chronicle the absence of Hon. G. H. Hodges, governor of Kansas, who was to have read a paper entitled "State Regulation of Those Who Treat The Sick."

In the absence of Governor Hodges, I will ask the secretary of Council, Dr. Green, to introduce the subject.

DR. FREDERICK R. GREEN, Chicago: I have not the slightest hope or intention of filling the place of Governor Hodges in presenting this subject, but desire to call your attention to a tentative bill which you will find under the head of "State Regulation of Those Who Treat The Sick."

There is an earnest desire on the part of the Council and Medicolegal Bureau to get a definite discussion and a concentrated idea in regard to the best method of handling the extremely difficult and complex problems that come up under the general question of the licensing of persons who are to treat the sick or to practice medicine under the various sects.

Dr. Green then gave a brief outline of the history and development of this movement, emphasizing the fact that the entire question was an educational and not a sectarian one and that the only fair basis was a single standard for all.

DR. CHARLES H. COOK, Natick, Mass., President of the Federation of State Examining and Licensing Boards: I do not feel that I have had sufficient concrete experience to discuss this subject intelligently, and when I realize that we have with us the executive officers of several state boards who have had actual experience in the courts and elsewhere bearing on the conditions set forth in the bill, I feel they have a right to be heard first, and I shall avail myself of a new beautitude of James Russell Lowell, "Blessed are they who have nothing to say and cannot be persuaded to say it." That is my position in regard to talking about the details of this bill. However, we are getting beyond the first stage principle in the different steps of reform laid down years ago by William Lloyd Garrison, the great antislavery agitator, when he said (I cannot quote his exact words): Talking creates zeal; zeal creates inquiry; inquiry creates opposition; opposition creates action; action creates union, and union creates victory.

DR. ARTHUR DEAN BEVAN, Chicago: I believe the time has distinctly come when the profession and the people of this country recognize the fact that medicine is to-day a science just as much as chemistry is. Feeling as I do about this matter, the practical and clear proposition that confronts us is that we should attempt to obtain public opinion that will enable us to have in our state governments some means by which we can determine whether or not a man or woman is a well-qualified practitioner of scientific medicine; that we should have some way in our state governments of not only determining that point, but designating whether that individual is a competent practitioner of medicine. I do not think anything else is necessary.

DR. C. N. SUTTNER, Walla Walla, Wash.: Our state board of examiners is pursuing a relentless warfare against quacks, particularly so-called chiropractics. We have convicted forty-three. We have no legal right to limit applicants that come before the board, but we have assumed the right that a young graduate must have certain qualifications.

DR. GEORGE B. YOUNG, Chicago: We have been trying for many years—and no one more efficiently than Dr. Bevan and his colaborers—to raise the standard of medical education in the United States, and we have sought to do that in part by imposing on the candidate for medical education a constantly rising standard of preliminary education. What we have done really is this: We have made rules of practice in the medical schools which require a candidate to have the equivalent of a high school education of two years of preliminary work in biology and other branches, but we have no machinery by which we can tell whether or not the medical schools are really doing the thing which they are supposed to do.

DR. WILLIAM A. STEWART, Pittsburgh: If we are to regulate the practice of medicine and eliminate quacks, it should be done in one way, and that is to have a uniform standard of education.

DR. WILLIAM H. WELCH, Baltimore: I am in sympathy with the position of Dr. Bevan. We are not the allopathic school; we are not a school of practice but are simply physicians, and there is no method of treatment of a patient—osteopathic, homeopathic or Christian Science—that a member of our profession is not at liberty to use if he thinks it will benefit the patient. There are two principles which have always guided the regulation of medical practice. One is an effort on the part of the state to secure a body of scientifically trained physicians, and the other is an effort to eliminate quacks.

DR. J. M. BALDY, Philadelphia: I have a strong basic belief that the way to wipe out quackism is to put the quack in such a dignified position that he will no longer be a quack, as he himself will get what good he can and see what merit there is in what he is doing, and he will gradually himself wipe out that which he sees himself, as he becomes more educated, is pure quackery. In that way there will be created an enormous impetus which will go toward wiping out quackism. With that as a basis, there is absolutely no justification whatever for any medical man to believe, ask or think that there should be any legislation given for his protection.

DR. B. D. HARISON, Detroit: We have the condition that Dr. Baldy is contending for in Michigan. We license drugless healers, but they must have a preliminary education sufficient to study medicine and also possess a fundamental education in order to make a good diagnosis.

DR. OTTO V. HUFFMAN, Albany, N. Y.: In New York the matter under discussion has been worked out on the basis of educational qualifications. In 1889 the Board of Regents began to require a medical student's certificate. At that time there were three separate medical examining boards—eclectic, homeopathic and the Medical Society of the State of New York. All the applicants for admission to any of these state boards had to have the same preliminary education as far as minimum requirements were concerned. In 1907 the State Board of Medical Examiners was created, and under the law there is no recognition given to any sect. The only way in which any recognition is given to a sect is this: Osteopaths are required to have the same preliminary education as others. They have to attend a professional school the same length of time and pass the same state board examination.

The subject was further discussed by Dr. Thomas F. Duhigg, Des Moines, Iowa; Dr. E. T. Abrams, Dollar Bay, Mich.; Dr. E. W. Warren, Palatka, Fla., and Dr. George H. Matson, Columbus, Ohio, after which the conference adjourned.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

January, XXXVI, No. 1, pp. 1-50

1 Feeble-Minded with Special Reference to Border-Line Cases. R. W. Hebberd, New York.
2 Neuropathic and Psychopathic Hospitals with Reference to Medical Teaching. R. Dewey, Wauwatosa, Wis.

American Journal of Diseases of Children, Chicago

February, IX, No. 2, pp. 81-188

3 *Energy Metabolism of Ten Hospital Children. J. R. Murlin, New York, and B. R. Hoobler, Detroit.
4 *Whey in Infant-Feeding. A. W. Bosworth, Geneva, N. Y., H. I. Bowditch and B. H. Ragle, Boston.
5 Treponema Pallidum Found at Autopsy in Blood-Stream and Elsewhere in Case of Congenital Syphilis. H. C. Clark and I. N. Gates, Ancon, C. Z.
6 *Voice Sign in Chorea—Technic of Elicitation. W. B. Swift, Boston.

3. **Energy Metabolism.**—Ten infants ranging in age from 2 months to 12 months and in nutritive condition from the last stage of marasmus to considerably overweight, were compared by Murlin and Hoobler as to their heat production both on the basis of weight and of surface area. The heat production was calculated from the oxygen absorption with knowledge of the respiratory quotient (corrections being made for temperature, barometric pressure, and composition of the air) and from the nitrogen of the urine. Graphic records of the respiration (in all cases) and of the pulse (in all but three cases) were obtained, these recording devices serving also to exhibit plainly on a smoked paper the degree of quiescence of the subject. The approximate specific gravity was determined by Kastner's method in the hope that it might serve as a measure of the proportion of fat to active tissue. The child was fed immediately before the observation each day and in nearly every experiment slept at least one, often two hours, while the respiratory exchange was being measured.

The authors found that the heat production for the sleeping period averages for the ten children 2.7 calories per kilogram and hour. It is highest on this basis for the atrophic and underweight children and lowest for the fattest child. On the basis of a square meter of surface the heat production of normal children shows a decided increase from the early months (2 to 4) to the later months (6 to 12) of the first year. The average of all the ten children is 39.7 calories. The average deviation from the mean heat production in all sleeping periods is about ± 10 per cent. for each of the several formulas expressing the relation of surface area to weight. Almost identically the same average heat production per unit of weight and per unit of surface is obtained when the infants between 2 months and 12 months (sixty-one in all) are compared, namely, 2.7 calories per kilo and hour, 39.3 calories per square meter and hour (Meeh). On the unit of weight all but three of the atrophic and underweight children (forty-eight in all) lie above the line represented by 2.5 calories per kilogram and hour; all the normals (eighteen) lie near this line; and all but one of the overweight infants (five) lie below this line. Two and one-half calories per kilogram and hour or 60 calories per kilogram and twenty-four hours may therefore be called tentatively the "normal heat production" of recently fed, sleeping infants between 2 months and 1 year of age. Included in this figure is whatever dynamic action the foods themselves may have; otherwise the figure is minimal. Hard crying may increase the metabolism as much as 40 per cent.; the requirement for growth and an allowance for non-absorption must be added. The average deviation from the mean on the basis of weight for all these children is 12.1 per cent.; on the basis of surface area (Meeh) 11 per cent. For smaller age groups of normal children the deviation is considerably less on the basis of surface area than on the basis of weight.

4. **Whey in Infant Feeding.**—The authors confirm the work of Osborne and Mendel in which they demonstrated the necessity of whey salts to promote growth of the young when fed on pure materials—fats, carbohydrates and protein. The investigation also seems to bear out the theory that creatin excretion is in some way involved in growth and also to offer an explanation of the fact observed by others that the creatin excretion of growing infants varies from day to day.

6. **Voice Sign in Chorea.**—The technic for eliciting the voice sign in chorea is to request the patient to sound a prolonged "a" as in "are" and to watch for the changes in vocal pitch and intensity which constitute the sign. If a contraction occurs in the expiratory muscles, the sound will markedly change in intensity and for the rest of the utterance, or until the occurrence of another contraction, the sound will return to its previous evenness of utterance. If during the sounding of "a" there occurs a choreic contraction in or near the vocal cords so that they are made more tense, the tone of that sound of "a" is thereby raised in pitch and then resumed at its previous level. The typical choreic voice sign is a change in pitch and intensity.

Archives of Pediatrics, New York

January, XXXII, No. 1, pp. 1-80

7 Precocious Maturity in Girls. Report of Case. F. Beekman, New York.
8 *Cutaneous Tuberculin Test in Children of Non-Tuberculous Parentage. M. Fishberg, New York.
9 *Streptococcus Meningitis. Report of Cured Case (Serum). P. L. Du Bois and J. B. Neal, Brooklyn.
10 Management of Breast Feeding. F. Vander Bogert, Schenectady.
11 Importance of Medical Supervision of Older Children. E. J. Wynkoop, Syracuse.

8. **Cutaneous Tuberculin Test in Children.**—Among 588 apparently healthy children of non-tuberculous parentage, Fishberg says, 52.72 per cent. gave positive reactions to tuberculin. During the first year of life the proportion of "reactors" is small and insignificant. From 1 to 2 years of age, 33.33 per cent. reacted; between 3 and 4 years of age, 41 per cent.; between 5 and 6, 50 per cent.; between 7 and 10, 64.74 per cent.; between 11 and 14, 69.4 per cent.; and at 14 years of age, 75 per cent. showed evidences of having been infected with tubercle bacilli. It appears that the cutaneous tuberculin test is quite reliable in showing whether or not a person has been infected with tubercle bacilli. It is, however, of little value in the diagnosis of the disease known as tuberculosis in its various manifestations. It appears that in large cities like New York, and even in small rural communities, most of the children have been infected with tubercle bacilli before reaching adolescence, though they have not necessarily suffered as a result of this infection.

9. **Streptococcus Meningitis.**—During the past four years Du Bois and Neal have seen eighteen cases of streptococcic meningitis, of which only one recovered. Five of these were due to *Streptococcus mucosus capsulatus*—considered by most as belonging to the pneumococcus group, the rest to the *Streptococcus pyogenes* group. In 2 of the cases the histories were lost. Of the remaining 16 there was no history obtainable bearing on the condition in 5 cases; 5 cases gave a previous history of middle-ear disease or mastoid; 2, of scarlet fever, middle ear and mastoid; 1, of operation on the nose; 2, of trauma of the head; 1, whooping-cough. Of these cases 7 received antistreptococcus serum, 5 receiving more than one dose intraspinally, intravenously or both. One of these recovered, as reported, and the other 4 showed considerable temporary improvement, though 3 were seen six days or more after the onset of symptoms. The fluids, too, showed improvement, the organisms becoming more and more intracellular and in one case diminishing in numbers.

Arizona Medical Journal, Phoenix

January, III, No. 1, pp. 7-25

12 Stricture of Esophagus. A. G. Schnabel, Tucson.
13 Artificial Pneumothorax. W. W. Watkins, Phoenix.
14 Vital Statistics in Arizona. J. W. Flinn, Prescott.

Boston Medical and Surgical Journal

February 11, CLXXII, No. 6, pp. 201-240

15 Venereal Disease and Prostitution. W. D. Bieberbach, Worcester.
16 Differential Diagnosis and Indications for Treatment of Tumors of Neck. O. C. Smith, Hartford, Conn.
17 Renal Infections. W. H. Robey, Jr., Boston.
18 Case of Human Rabies. H. Linenthal, Boston.

California State Journal of Medicine, San Francisco

February, XIII, No. 2, pp. 43-86

19 Operations in Eye Clinic of Stanford University. A. B. McKee, San Francisco.
20 *Skin Test in Typhoid. F. F. Gundrum, Sacramento.
21 Pregnancy Toxemias—Their Etiology and Treatment. J. J. Hogan, San Francisco.
22 Inflamed Eye—Comments on Its Diagnosis. G. H. Kress, Los Angeles.
23 Operative Procedures of Ocular Muscles in Heterophorias. E. W. Alexander, San Francisco.
24 Conservative Management of Handicapped Gynecologic Patient (Anoci-Association). T. O. Burger, San Diego.
25 Ehrlich's Aldehyd Test for Urobilinogen. A. H. Robertson, Boston.
26 Etiology and Treatment of Superfluous Hair. G. D. Culver, San Francisco.
27 *Treatment for Typhoid. H. A. Collings, Winters.
28 Ureteral Defect Repaired with Loop of Intestine. Report of Case. J. H. Barbat, San Francisco.
29 Tubercular Peritonitis. W. O. Henry, Los Angeles.
30 Compound Fracture of Both Femurs with Extensive Laceration of Soft Parts. T. W. Huntington, San Francisco, and A. Powell, Oakland.
31 Advent of Chinese Physicians into California. J. F. Gibbon, San Francisco.
32 Case of Acute Pancreatitis with Accompanying Pseudocyst. H. A. L. Ryfkogel and G. H. Taubles, San Francisco.

20. **Skin Test in Typhoid.**—In order to compare the skin reaction with the Widal test for agglutinins, all patients suffering from typhoid admitted to the Sacramento County Hospital during the past summer received a skin test at the same time the blood for Widal test was made. At first Gundrum used a suspension of dead bacilli, 100 million to 1 c.c., obtained from one of the commercial houses. One-tenth c.c. (0.1 c.c.) of this bacterin was injected intradermally usually leaving a wheal about 5 or 6 mm. in diameter. If a red maculopapule as large or larger than the original wheal appeared between six and forty-eight hours from the time of injection, he considered the test positive. Gundrum tried this suspension of dead bacilli on eleven patients, six typhoids with positive Widals and five non-typhoids. In no case did a satisfactory reaction develop. Then he substituted Gay's vaccine, a suspension of sensitized and ground up typhoid bacilli of greater bacterial density (750 million to 1 c.c.). On thirteen typhoid patients this suspension gave a distinct positive in ten. Ten also gave a positive Widal test, but not the same ten. Of nine malaria patients eight did not give a reaction. Of eight controls none reacted. Thus the suspension of sensitized ground bacilli introduced intradermally gave reactions in as many patients as agglutination was observed in the Widal test, while the ordinary suspension failed to produce a characteristic response.

27. **Treatment for Typhoid.**—Knowing the efficacy of the bacillus bulgaricus in colitis colica and the summer diarrheas of both infants and adults Collings began using it some time ago in the treatment of typhoid and the results are very encouraging. By thoroughly saturating the patient with the culture of bacillus bulgaricus Collings states that the normal alkaline state of the bowel is changed to an acid one and inhibits further growth of the ingested typhoid bacilli (if not killing them), thus reducing the severity of the attack in all its symptoms excepting the persistent headache, and avoids the (1) initial constipation with following diarrhea, (2) extreme prostration, (3) dangerous tympanites, and (4) delirium. The usual emaciation does not follow, for it is not necessary, after saturation, to keep them on a liquid diet; a small dose of castor oil promptly relieves any discomfort. The usual supporting remedies are required.

Illinois Medical Journal, Chicago

February, XXVII, No. 2, pp. 81-176

33 Social Economic Aspect of Tuberculosis. M. Sahud, Chicago.
34 Recent Advances in Diagnosis and Treatment of Pulmonary Tuberculosis. E. J. O'Neill, Chicago.
35 Prevailing Mistakes in Antituberculosis Movement. G. T. Palmer, Springfield.
36 Relation of Tubercular Infections to Gynecologic Affections. A. J. Butner, Harrisburg.
37 Immunity in Tuberculosis. W. H. Watterson, Waukegan.
38 Chicago Plan for Municipal Control of Tuberculosis. T. B. Sachs, Chicago.
39 Suppurative Glandular Tuberculosis Simulating Typhoid Terminating in Miliary Tuberculosis. H. J. Dooley, Chicago.
40 Spinal Anesthesia in Gynecology. H. J. Boldt, New York.
41 Spinal and Local Anesthesia Combined. L. H. Debayle, Lyon, Nicaragua.
42 Sacral Anesthesia. K. E. Schloessingk, Freiburg, Germany.
43 Operations for Laceration of Cervix Uteri. H. F. Lewis, Chicago.
44 Military Surgeon on Firing Line. P. J. H. Farrell, Chicago.
45 *Report of Research Demonstrating Infectious Nature of Cancer. H. W. Abelmann, Chicago.
46 *Diagnostic Worth of Laboratory Data in Gastric Cancer. F. Smithies, Chicago.
47 Early Diagnosis of Gastric Carcinoma. O. A. Ambrose, St. Louis.
48 Antispitting Signs and Control of Expectoration. A. Gehrmann, Chicago.
49 Metastatic Infections. J. A. Colteaux, Roberts.
50 Infection as Cause of Rheumatism, Endocarditis, Arthritis Deformans, Ulcer of Stomach and Cholecystitis. S. S. Fuller, Paxton.
51 Acute Infantile Otitis. E. E. Woodside, Marion.
52 Conservation of Hearing. E. E. Edmondson, Mt. Vernon.
53 Vincent's Angina. J. Z. Bergeron, Chicago.
54 Indigestion. E. O. Laughlin, Paris.
55 Colipyelitis. B. G. R. Williams, Paris.
56 Relation of Trauma to Appendicitis. C. Sherrick, Monmouth.
57 Intracapsular Cataract Operation. W. A. Fisher, Chicago.

45. **Research Demonstrating Infectious Nature of Cancer.**—His experience with cancer has forced Abelmann to look on "carcinoma" and "sarcoma" as different manifestations of the same disease and to regard cancer as truly an infectious disease as tuberculosis and syphilis. He says that there is a difference between cancer cell transplantation and cancer infection. (*a*) With the transplantation of a malignant tumor the cells simply continue their growth as a piece of the original tumor. With cancer infection, however, the specific microorganism is responsible for the development of cancer and here the infected animal's own tissue cell undergoes a malignant change. (*b*) In inoculating with the cancer germ any type of this disease is liable to develop.

Whereas with a transplanted cancer the same type of tumor will develop as has been transplanted. (*c*) In infected animals there is no telling where a tumor will develop. With transplanted cancer, however, a tumor will grow at the site at which the grafting was performed. (*d*) With cancer infection, animals will take the disease irrespective of species, whereas with cancer cell transplantation animals of the same or closely allied species have shown results. (*e*) With cancer infection usually metastatic tumors develop, whereas with cell transplantation secondary growths very rarely occur. (*f*) Time is a great and important factor with infection, as manifestations of the disease appear months and even years after inoculation (henceforth the impossibility of diagnosing cancer in its early stage in human beings). Whereas with transplanted cancer a tumor usually starts to grow as soon as it is grafted. Certain infected animals never developed cancerous tumors (carcinoma and sarcoma), but developed conditions that strongly suggest the probable similarity or possible identity of conditions found in human beings, namely, pernicious anemia and leukemia; others die from a condition simulating tuberculosis.

46. **Diagnostic Worth of Laboratory Data in Gastric Cancer.**—In 18 per cent. of 700 cases studied by Smithies the removed material or the vomitus was dark brown or coffee colored. Many extracts were cream colored, dark green, yellow or bright red. In cases in which coffee-colored contents were noted, there was in 96 per cent. a hopelessly extensive process. In 65 per cent. the vomitus of test-meal extracts were rancidly sour. Twelve-hour retention was demonstrated in 504, or 72 per cent. In but 54 per cent. was free hydrochloric acid absent. In nearly 46 per cent. free Hcl ranged from a trace to as high as 120. One out of every five patients had free Hcl between 20 and 50.

Total acidity ranged above 50 in about 20 per cent. and combined acid and acid salts were below 50 in nearly 90 per cent.

The average free hydrochloric acid estimation in 436 cases of inoperable gastric cancer was 7.46. The average total acidity was 28.3. The average combined acidity was

21.0. Lactic acid was present in 62 per cent. of this group. The average free Hcl in 65 cases of ulcerated primary cancer was 2.0. The average total acidity was 34.0. The average combined acidity was 31. Lactic acid was demonstrated in 63 per cent. of this class. The average free hydrochloric acid estimation in 119 cases of gastric ulcers that had undergone malignant change was 33.4. It ranged from 4 to as high as 120. The average total acidity was 51.0. The average combined acid was 16.0. Lactic acid was present in but 23 per cent., or in approximately one case out of five. In the primary cancer group, lactic or other organic acid was demonstrated in 54 per cent. of the gastric extracts. In the group of cancers seemingly following a chronic gastric ulcer, lactic acid was present in 42 per cent. More than 65 per cent. of cases showing lactic acid revealed free Hcl absent, and in 75 per cent. the demonstration of lactic acid was associated with interference with the stomach's emptying power. Tests for occult or altered blood by the benzidin or the guaiac methods, were positive in 72 per cent. of the total test-meals of the series. The glycyltryptophan test was positive in 40 per cent. In 141 cases of cancer, or 65.1 per cent., the Wolff test was positive; in 29 cases (13.4 per cent.), the test was suspicious. Gastric extracts from 15 cases of ulcus carcinomatosum were tested. In 11 instances (73.3 per cent.), the test was positive; 3, or 20 per cent., were suspiciously positive.

Journal of Cutaneous Diseases, New York

February, XXXIII, No. 2, pp. 73-160

58 Cellular Elements of Blood in Three Hundred Cases of Various Skin Diseases. M. F. Engman and R. H. Davis, St. Louis.
59 Biochemical Properties of Chrysarobin. J. F. Schamberg, G. W. Raiziss and J. A. Kolmer, Philadelphia.
60 Instance of Asymmetric Raynaud's Disease. D. W. Montgomery and G. D. Culver, San Francisco.
61 *Purpura Annularis Telangiectodes. G. M. MacKee, New York.

61. Abstracted in THE JOURNAL, June 3, 1914, p. 1920.

Journal of Experimental Medicine, Lancaster, Pa.

February, XXI, No. 2, pp. 103-191

62 *Reactions Between Bacteria and Animal Tissues Under Conditions of Artificial Cultivation. H. F. Smyth, Philadelphia.
63 Varieties of Pneumococcus and Their Relation to Lobar Pneumonia. A. R. Dochez and O. T. Avery, New York.
64 Types of Pneumococci in Tuberculous Sputum. H. W. Lyall, New York.
65 *Mode of Action of Substances Inhibiting Tumor Growth and Immunization Against These Substances. M. S. Fleisher and L. Loeb, St. Louis.
66 *Comparison of Autoplastic and Homeoplastic Transplantation of Thyroid Tissue in Guinea-Pig. C. Hesselberg, St. Louis.
67 Subcutaneous Absorption and Quantitative Estimation of Cholesterol. H. J. Corper, Chicago.
68 Resistance of Pups to Late Chloroform Poisoning in Its Relation to Liver Glycogen. E. A. Graham, Chicago.

62. **Reactions Between Bacteria and Animal Tissues.**—Smyth gives an outline of the results of observations on over 1,100 tissue cultures. The reaction of bacteria to tissue cultures would seem to be more or less parallel to the pathogenicity of the organism for the animal supplying the tissue. This method promises a reliable means of differentiation between some pathogenic and non-pathogenic organisms of the same species. It will probably shed more light on the protective action of tissue cells and cell products against bacterial action, as is seen with splenic cultures. It will probably explain more clearly the action of pathogenic bacteria and the definite relation they bear to the tissues involved and to the blood plasma, as is seen from the peculiar behavior of *Bacterium diphtheriticum* in tissue cultures.

65. **Action of Substances Inhibiting Tumor Growth.**—The authors' later investigations confirm their previous results. They claim that it is possible to increase markedly the effect of substances inhibiting tumor growth by using certain combinations of these substances which, when given alone, have some effect on tumor growth. Immunity acquired against the effect of these substances depends partly on an active immunization of the tumor cells themselves against the action of these substances, and this immunity is transmitted to the following generations of tumor cells. The immunity against the substances inhibiting tumor growth is, so far as Fleisher and Loeb have investigated the problem, specific. Their later experiments provide a more secure basis for the additional and more general conclusions mentioned tentatively in a previous paper.

66. **Transplantation of Thyroid Tissue in Guinea-Pig.**—Summarized briefly the principal result of Hesselberg's experiment was, that for a short period of time after operation no difference is seen in the behavior of the thyroid after autotransplantation and homeotransplantation. Very soon, however, a destruction of follicles begins to take place in the homeografts. This destruction is not caused by a direct primary disintegration or solution of follicles, but depends on the destructive activity of (1) the lymphocytes, and (2) of the connective tissue of the host tissue. The former invade the follicles and destroy them directly; the latter grows into the homeografts in larger quantity than into the autografts. In the former it soon becomes fibrous and hyaline; in the latter it remains cellular. The fibrous connective tissue surrounds and compresses and thus destroys the follicles. In some homeografts, destruction by means of lymphocytes, in others by connective tissue, preponderates. The rapidity with which the destruction takes place in different homeotransplants also varies. A much better blood vessel supply develops in the autografts than in the homeograft.

Journal of Infectious Diseases, Chicago

January, XVI, No. 1, pp. 1-108

69 Typhoid in Rockford, Ill. P. Hansen and H. N. Parker, Urbana.
70 *Effect of Quinin on Rabies. C. Krumwiede, Jr., and A. G. Mann, New York.
71 *Relative Virulence of Sensitized and Non-Sensitized Typhoid Bacili. R. L. Cecil, New York.
72 Classification of Bacillus Welchii Group of Bacteria. J. P. Simonds, Chicago.
73 Effect of Symbiosis on Spore Formation by Bacillus Welchii with Special Reference to Presence of These Spores in Stools. J. P. Simonds, Chicago.
74 *Action of Sodium Sulphocyanate in Tuberculosis. H. J. Corper, Chicago.
75 *Sodium Tellurite as Rapid Test for Viability of Tubercle Bacilli. H. J. Corper, Chicago.
76 Inoculation Experiment with Pure Culture of Spirocheta Hyos. W. E. King and R. H. Drake, Detroit.
77 *Effect of Quinin in Rabies. V. H. Moon, Chicago.
78 Specific Precipitin in Blood of Persons Injected with Antidiphtheric Horse Serum. C. W. Wells, Chicago.
79 *Fecal Flora of Typhoid and Its Reaction to Various Diets. J. C. Torrey, New York.

70. **Effect of Quinin on Rabies.**—Of four dogs treated with quinin, one showed a prolonged period of incubation and another showed a remission in the course of the disease, in either case, however, not beyond variations in the natural course of the disease. The fact that these variations occurred in the two of four dogs receiving the largest amounts of quinin Krumwiede and Mann regard as being probably only a coincidence. No influence was observed on the period of incubation in rabbits.

71. **Virulence of Sensitized and Non-Sensitized Typhoid Bacilli.**—According to Cecil his experimental work showed that sensitized, living typhoid bacilli, when injected intravenously in rabbits and guinea-pigs, are less virulent than non-sensitized, living typhoid bacilli. Sensitized typhoid bacilli, killed by heat, are in a similar way less virulent than non-sensitized, killed typhoid bacilli. The most probable explanation in Cecil's opinion for this difference is that sensitized typhoid bacilli undergo phagocytosis and bacteriolysis more rapidly than the non-sensitized bacilli.

74. **Sodium Sulphocyanate in Tuberculosis.**—Sodium sulphocyanate was found by Corper to be lethal to rabbits when given intravenously in amounts of 0.4 to 0.6 gm. per kilo. Delayed death may occur even from smaller amounts. When injected intravenously (about 0.4 gm. per kilo), it is found in the tuberculous tissues in concentration about equal to that in the blood (0.06 to 0.08 per cent.). The concentration in the lungs, heart, kidneys, and testes is not far from that in the blood, the concentration in the liver is less, while it is practically absent from the muscles. It disappears

from the tissues (normal and tuberculous) as speedily as it does from the blood (being absent about five days after injection). No evidence of a chemical affinity of the sodium sulphocyanate for any of the normal or tuberculous tissues was obtained. Tubercle bacilli, exposed to concentrations of sodium sulphocyanate up to 1 per cent. for forty-eight hours at 37 C. and up to 0.1 per cent. for seven days at 37 C., were not killed. No evidence even of attenuation was observed.

75. **Tellurite Test for Viability of Tubercle Bacilli.**—As a result of an attempt to use the Gosio vital reaction (sodium tellurite) as an index of life of virulent human tubercle bacilli in bactericidal experiments in connection with chemotherapeutic work; Corper found that it was not an available general reagent for this purpose, at least by the methods tested. Nevertheless, by its use a simple, rapid test was developed for determining the viability of cultures of tubercle bacilli, of value especially in eliminating such loss of time as may be occasioned by working with dead instead of viable cultures. A small lump of the culture to be tested is placed in the cup of a sterile, hollow glass slide and one or two small drops of sterile 0.2 per cent. sodium tellurite in distilled water are added; it is covered with a sterile glass cover slip bordered with sterile vaselin, and placed in the incubator at 37 C. Life of the organism is indicated by the blackening of the lump of culture, which occurs in from thirty minutes to two hours. Sodium tellurite is lethal to rabbits when it is given intravenously in amounts of about 0.8 mg. per kilo. It does not kill the tubercle bacillus even when in 0.01 per cent. concentration in salt solution or glycerol broth for forty-eight hours at 37 C., nor does it inhibit the growth in 0.001 per cent. concentration on glycerol agar.

77. **Effect of Quinin in Rabies.**—Quinin failed to be regularly effective as a cure or preventive of rabies in the animals used by Moon in his experiments. Quinin, given in the latter stages of hydrophobia in two human cases, produced no significant results. Quinin appeared to retard somewhat the development of street rabies if given in large doses during the incubation period. The results indicated that the organism, which causes rabies, is influenced in some degree by quinin. This Moon regards as being significant as showing that the organism is susceptible to therapeutic measures, and gives reason to hope that some drug may be found which will be of value in the treatment of hydrophobia.

79. **Diet and Fecal Flora in Typhoid.**—In a series of typhoid cases, studied by Torrey, the intestinal flora as revealed by examinations of the stools soon after the admission of the patients to the hospital was not uniform or specific in type, but exhibited variations that might be observed in a series of supposedly normal individuals. Apparently, the character of the intestinal flora is not a factor concerned in the determination of susceptibility to typhoidal infection. On a diet consisting of a daily average of from 50 to 100 gm. of protein, from 75 to 100 gm. of fat, and from 250 to 300 gm. of carbohydrate, including lactose, the intestinal flora tended to become simplified in regard to the variety of bacterial types observed in direct Gram-stained smears from the feces and in cultures and to become converted into a fermentative type in which the dominant organism was *Bacillus acidophilus*. The degree of this transformation was dependent largely on the type of flora which was present at the onset of the disease. When the flora showed a definite putrefactive tendency, the change did not extend farther than the elimination of the obligate putrefactive organisms and a moderate development of the aciduric types; while, with a more favorable initial flora, the change was of so radical a type that the stools finally resembled those of the first few years of normal infancy in the dominance of *B. acidophilus* and even in the presence of *B. bifidus*. Such a flora is not an obligate fermentative one and under the conditions of feeding is not capable of forming indol. Observations on a few patients given a purely milk diet indicated that this food alone does not bring about this transformation of the intestinal flora to such a degree as that which may follow a more liberal carbohydrate feeding. Patients exhibiting an initial fermentative flora of the aciduric type adapted themselves more readily to the high calory diet of Coleman, as shown especially by a comparative freedom of distention, than did patients with floras of putrefactive tendencies; in such patients, the diseases showed a marked tendency to run a mild course. The typhoid bacillus was isolated from the stools of these patients on a high calory diet less frequently than has been reported for other series of cases in which the feeding was less liberal.

Journal-Lancet, Minneapolis

February 1, XXXV, No. 3, pp. 53-79

80 *Neuroplasty of Median and Ulnar Nerves. R. E. Weible, Fargo, N. Dak.

81 Work of European War Surgeon. O. A. Oredson, Duluth.

80. **Neuroplasty of Median and Ulnar Nerves.**—The inner side of the whole upper right arm of Weible's patient was ground out by the rapidly moving knives of a mowing-machine. The portion destroyed included muscle, artery and vein, the internal cutaneous nerve, and the median and ulnar nerves. The musculospiral nerve escaped because of its depth. Four or five days later Weible saw him. Any attempt to use the arm resulted in extension of the hand on the wrist with the fingers in a flaccid, partly closed position—the "main en griffe." Sensation was gone over most of the forearm and hand. While there was some difficulty in finding the nerves, due to the dense cicatricial tissues, the neuromatous ends were eventually discovered, and the nerves freed. Nearly 13 cm. of the median and ulnar nerves were missing.

To perform the neuroplasty it was found necessary to split both the proximal and the distal portions of each nerve to secure enough flap material to bridge the gaps. This splitting extended near to, but not into, the neuromas; and at this point careful examination was made to see that the nerve fibers showed distinctly clear to the end of the incision in the nerve. The neuromas were not removed; but between each two a tension suture was placed. With a few sutures the median nerve was buried in the biceps muscle, and the ulnar in the triceps. The wound was closed without drainage.

In three weeks the patient was complaining of tingling and burning sensations in the forearm and hand. The first sensation to return came in the little finger, in the outer half of the ring finger, and the ulnar side of the hand; and motion followed in the same order. Motion came next to the middle finger, and finally to the index finger and thumb. Four years after operation the little, ring and middle fingers functionate in a perfect manner. The short flexors of the index finger and thumb are normal, while the long flexors are just beginning to act. The muscles of the arm have developed wonderfully well, and the hypothenar eminence and the ulnar side of the hand are as round as ever they were. The ulnar nerve is completely restored; the median, nearly so. The only branches of the latter that are not fully developed are the anterior interosseous nerve and the muscular branch in the hand. The tactile sense is still incomplete. He uses his hand well, and for the past year has handled a team of horses from his seat on a livery carriage.

Journal of Nervous and Mental Disease, Lancaster, Pa.

January, XLII, No. 1, pp. 1-64

82 *Spinal Decompression in Meningomyelitis. A. S. Taylor, J. W. Stephenson, New York.

83 Pathology of Tabetic Ocular Palsy; Relation of Syphilis to So-Called Parasyphilitic Diseases. W. G. Spiller, Philadelphia.

84 Case of Probable Encephalitis Due to Inhalation of Fumes of Gasoline. C. S. Potts, Philadelphia.

85 *Diagnostic Value of Hallucinations: Based on Study of Five Hundred Cases of Mental Disease. A. W. Stearns, Boston.

82. **Spinal Decompression in Meningomyelitis.**—It is held by Taylor and Stephenson that selected cases of meningomyelitis are susceptible to surgical treatment, in which the findings indicate the segmental level. This treatment should consist in laminectomy, free opening of the dura, and, probably, incision into the posterior columns of the cord, espe-

cially in those cases showing marked infiltration and swelling of the cord. This operation, properly performed, adds very little to the jeopardy of the patient, but, on the contrary, seems to greatly diminish the period of convalescence and to lead to a more nearly normal return of function in the cord than is usual in these cases when treated expectantly. Many surgeons have demonstrated that laminectomy is not a very dangerous operation. Decompression probably acts favorably by causing freer circulation, with the more rapid absorption of the inflammatory exudate. Incision of the cord probably facilitates drainage. The small risk inherent in laminectomy, and the great advantage likely to accrue to the patient, argue much in favor of the surgical treatment of these cases. The same facts also argue for the earlier employment of exploratory laminectomy in most spinal cases in which the diagnosis is not perfectly clear, but cases in which the symptoms point to some cord level as the seat of trouble.

85. **Diagnostic Value of Hallucinations.**—Of the 31 cases of alcoholic hallucinosis studied by Stearns, 100 per cent. were hallucinated, 97 with auditory, 4 with visual and 13 with other types. Examination of the delirium tremens group showed that 100 per cent. of the 14 cases were hallucinated, 78 auditory, 85 visual and 14 other types. Of 105 cases of dementia praecox 70 per cent. were hallucinated, 68 auditory, 21 visual and 10 other types. Of the 31 cases not showing hallucinations, 11, though the patients denied such presence, showed some evidence of their existence, 3 were catatonic and did not speak, 6 could not be examined because of violence or language difficulty, and in only 11 cases, or 10 per cent., could it be fairly said that they were absent. Of two brain-tumor cases one patient thought he heard the voice of a friend calling and this may have been an illusion. Of five toxic cases, two patients had indefinite hallucinations which were not unusual. Of three epileptics who had hallucinations, one had the visual, one the tactile, and one the gustatory type. Twenty-seven per cent. of the unclassified cases were hallucinated. Twenty-five per cent. of the general paralytics were hallucinated, 24 of the auditory and 11 of the visual type. No two of these were alike, and in but two cases were hallucinations a prominent symptom. In only one out of four cases of cerebral syphilis was there a history of hallucinations and this one was rather definite. In Korsakow's disease, 27 per cent. admitted hallucinations, these usually occurring in a delirious onset. In the manic-depressive group, but 18 per cent., were hallucinated. Thirteen per cent. of these were auditory and 9 visual and in 54 cases but 10 patients had hallucinations. In none of these were they a prominent symptom and in many there is reason to doubt their existence. Seven of these 10 were manic and 3 depressed.

The following conclusions are drawn by Stearns from this work: 1. The presence of hallucinations is indispensable for the diagnosis of alcoholic hallucinosis or delirium tremens, but the type of hallucinations is not a proper criterion for differentiation between these diseases. 2. The frequency of hallucinations in dementia praecox and their rarity in manic-depressive insanity has a bearing on differential diagnosis (provided that psychopathic hospital criteria are sound for these two diseases). 3. There are some grounds for doubting the existence of true hallucinations in manic-depressive insanity. 4. Hallucinations seem to be rare in sane persons, even though they be psychopaths.

Kentucky Medical Journal, Bowling Green

February 1, XIII, No. 3, pp. 85-136

86 *Treatment of Most Frequent Deformities Following Infantile Paralysis. W. B. Owen, Louisville.
87 *Diagnosis of Paralysis in Childhood. J. J. Moren, Louisville.
88 Methods of Early Diagnosis of Pulmonary Tuberculosis. B. K. Menifee, Walton.
89 Childhood Infection, Adult Death. O. E. Senour, Union.
90 Radium in Surgery and Dermatology. M. L. Ravitch, Louisville.
91 *Periodic Examination of Supposedly Well Persons. E. L. Fisk, New York.
92 Rural Hygiene and Sanitary Privy. C. W. Shaw, Alexandria.
93 Drink Plenty of Water. J. J. Moren, Louisville.
94 Present Status of Vesical Tumors with Reference to Fulguration. G. H. Day, Louisville.
95 Typhoid. T. C. Nichols, Morgan.
96 Some Points to Remember in Making Examinations and Diagnosis of Diseases of Chest. B. A. Caudle, Hopkinsville.

86 and 87. Abstracted in THE JOURNAL, Oct. 24, 1914, p. 1501.

91. Abstracted in THE JOURNAL, Oct. 17, 1914, p. 1417.

Maine Medical Association Journal, Portland

December, V, No. 5, pp. 161-196

97 Sterilization of Unfit. H. M. Swift, Portland.
98 Mueller-Walle Method of Lip-Reading for Adult Deaf. M. J. Worcester, Portland.

Medical Record, New York

*February 13, LXXXVII, No. 7, pp.*253-294*

99 *Intoxication Impulse. A. Lambert, New York.
100 What First Aid in Railway Surgery Does Not Mean; and What It Actually Does Mean. D. McCaskey, Witmer, Pa.
101 *New Remedial Agent and Its Effects in Pulmonary Tuberculosis. B. H. Waters, New York.
102 Blood Pressure Variations, With Some Reference to Treatment. W. Martin, Atlantic City, N. J.
103 Case of Gumma of Lower Eyelid. A. J. Gilmour, New York.

99. **Intoxication Impulse.**—The last four years have forced on Lambert the belief that the majority of periodic drinkers who are endeavoring hopelessly to cease their periodic sprees are really cases of chronic tobacco poisoning. This is seen more frequently among the incessant cigarette smokers than among those who usually smoke a pipe or cigars. It is seen most commonly among those who always inhale their tobacco smoke. Drugs are absorbed by the tracheal mucous membrane as quickly as by subcutaneous injections. The effect of the pyridin and collidin, and other substances contained in tobacco smoke, is quickly felt by those who inhale. The ease with which cigarettes can be smoked, the universality of the habit, and the accepted permission that a cigarette can be smoked often in cases in which a pipe or a cigar cannot, add to the frequency of the cigarette indulgence. Tobacco at first is used to soothe the nerves, and is taken for its soothing effect. In the early stages it slightly quickens the circulation and thus increases cerebral action. It, therefore, helps in mental rapidity in the early stages of moderate indulgence. Soon it is the accepted panacea for any worry or disturbance of the equilibrium of daily life. Then it is soon necessary to have a certain number of cigarettes that a certain amount of the narcotic may be absorbed to smooth out the daily existence. In this stage of tobacco poisoning the lotos eating contentment and mental inertia are evident and further over-indulgence brings on a nervousness which, in the beginning, a very little more indulgence in tobacco will allay. Soon, however, the more tobacco that is smoked and the more that is inhaled, the greater is the nervousness. It has then ceased to produce its narcotic effect and is producing its chronic poisoning. The individual therefore turns to something that he knows will have a narcotic effect and quiet his over-wrought nerves. This he knows alcohol will do, and in these individuals the first drink of alcohol leaves them not sober and starts in them its narcotic craving which drives them on to the full expression of their spree. As they sober up they cease for a few days both smoking and drinking, and as soon as they are over the spree they begin to smoke again and the vicious cycle is sooner or later completed. Lambert is firmly convinced that this double narcotic poisoning explains the majority of the periodic drinkers of to-day. If these patients are made to cease their smoking their drinking ceases automatically. It is the expression of an uncontrollable poisoning.

101. **New Remedial Agent and Its Effect in Pulmonary Tuberculosis.**—Waters claims that when the vapor of pinene is exposed to a current of ozonized air, prepared by the action on dry air of a high tension electric discharge, an addition occurs between the pinene and oxygen, resulting in the production of a dense white vapor. To this substance he has given the name oxypinene. It is chemically a pinene monozonide, occurs also as a diozonide and other multiples of the oxygen atom, and readily dissociates into its active principles, peroxid of hydrogen and pinonic acid, aldehyd

and ketone. Waters says that it possesses the valuable therapeutic properties of pinene without its irritating effects on the kidneys and urinary tract. Applied to the skin and mucous membranes it acts as a mild stimulant, markedly differing in this respect from the powerfully irritating oil of turpentine. The vapor is respirable for hours at a time, and its use may be continued indefinitely day after day without producing symptoms of renal irritation. It is antiseptic and bactericidal when applied to cutaneous and mucous surfaces. Bacteriologic experiments have been repeated many times, in the same manner, with uniform results, and from them it seems that oxypinene is a germicidal gas, of high efficiency, which is at once respirable and easily produced, continuously, in large quantities.

New Jersey Medical Society Journal, Orange

February, XII, No. 2, pp. 53-104

104 Treatment of Impacted Ureteral Calculi. G. N. J. Sommer, Trenton.
105 Prudential's Ordinary Mortality Experience from Pulmonary Tuberculosis. W. P. Watson, Jersey City.
106 Glandular Tuberculosis. H. W. Brown, Jersey City.
107 Spinal Anesthecinesia. Report of Three Hundred Cases. M. W. Reddan, Trenton.
108 Diagnostic Advances in Pulmonary Tuberculosis. C. V. R. Bumsted, Newark.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

January, XX, No. 1, pp. 1-60

109 Treatment of Articular Rheumatism. W. N. Berkeley, New York.
110 Two Reasons for Therapeutic Nihilism. S. W. Dickinson, Marion.
111 Hysteric Paralysis. B. R. Tucker, Richmond.
112 Uncinariasis. A. A. Marsteller, Richmond.

South Carolina Medical Association Journal, Anderson

January, XI, No. 1, pp. 1-34

113 Case of Cesarean Section. J. Lunney, Darlington.
114 Successful (Antitoxin) Treatment of Case of Tetanus. C. B. Epps, Sumter.
115 Membranous Lesions of Throat. E. F. Parker, Charleston.
116 Evils of Equivalent Certificate as an Entrance Requirement to Medical Colleges. A. M. Brailsford, Mullins.
117 Crossen's Method of Precluding Possibility of Unintentionally Leaving Gauze in Abdominal Cavity. L. Peters, Columbia.
118 Some Experiences on Private Duty. E. Evans, Sumter.
119 Report of Interesting Case. T. M. DuBose, Jr., Columbia.
120 Obstructions of Nose and Throat. T. C. Quickel, Gastonia, N. C.

Southern Medical Journal, Mobile

February, VIII, No. 2, pp. 85-166

121 Antiplague Measures—With Special Reference to New Orleans Campaign. R. Blue, Washington, D. C.
122 *Early Diagnosis of Pulmonary Tuberculosis—Essential Factor in Prevention and Cure. C. H. Cocke, Asheville, N. C.
123 *Significance of Von Pirquet Test. T. Frazer, Asheville, N. C.
124 *State Policy in Management of Tuberculosis. W. S. Rankin, Raleigh, N. C.
125 *Federal Government and Our Tuberculosis Problem. G. M. Cooper, Clinton, N. C.
126 Tuberculosis Sanatoria in South. J. J. Lloyd, Catawba Sanatorium, Va.
127 *Pleural Effusions of Artificial Pneumothorax. M. E. Lapham, Highlands, N. C.
128 *Etiology and Treatment of Pellagra. B. W. Page, Lumberton, N. C.
129 *New Complement Binding Reaction in Syphilis. S. T. Harris, Atlanta, Ga.
130 Emetin Hydrochlorid in Treatment of Entamebiasis and Other Affections. R. Lyons, New Orleans.
131 Medical Inspection of Rural Schools—Methods, Results, Possibilities. R. K. Flannagan, Richmond, Va.
132 Observations and Suggestions Relative to Municipal Sanitation. W. H. Rowan, Jackson, Miss.
133 Some Experimental Work on Circulation of Testicle. H. B. Gessner, New Orleans.
134 Tetany Following Parathyroidectomy; Report of Case Following Partial Thyroidectomy. G. B. Johnston and S. W. Budd, Richmond, Va.
135 Safeguarding in Prostatectomy. S. Leigh, Norfolk, Va.
136 Spontaneous Rupture Lateral Sinus with General Septicemia in Ulcerating Sinusitis. E. H. Cary, Dallas, Tex.
137 Relation of Pathologic Conditions in Otorhinology to General Medicine and Surgery. J. A. Stucky, Lexington, Ky.

122, 123 and 124. Abstracted in THE JOURNAL, Dec. 5, 1914, p. 2068.

125 and 127. Abstracted in THE JOURNAL, Dec. 5, 1914, p. 2068.

128. Also published in *Medical Record*, Jan. 2, 1915, and abstracted in THE JOURNAL, February 6, p. 541, abstract No. 72.

129. **New Complement-Binding Reaction in Syphilis.**—The serum of a patient who was unquestionably clinically syphilitic, and who later responded perfectly therapeutically, was heated by Harris to 71 to 72 C. (159.8 to 161.6 F.) for twenty minutes; 5 drops of this serum, as well as that of others similarly treated, were used as antigens. With this change the technic of Noguchi was followed. It was found that the serum of syphilitics with antibody eliminated by heat acted as antigen and gave complement binding with the serum of other syphilitics. Serums which had given antibody reactions were in turn found to act as a finder for antigen in other serums which had been heated to 71 to 72 C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

January, II, No. 7, pp. 351-516

1 *Treatment of Malignant Disease by Radium Irradiation. A. C. Morson.
2 Fistula in Ano: With Special Reference to Its Presence in Children. P. H. Mitchiner.
3 *Ossification in Sarcoma of Bone. Report of Cases. R. L. Knaggs and O. C. Gruner.
4 *Treatment of Urethral Stricture by Excision. R. H. Russell.
5 Sarcoma of Nose and Nasopharynx. A. Dighton.
6 *Method of Amputation at Ankle-Joint Which Leaves Heel Intact; Tibiocalcaneal Resection with Amputation of Remainder of Foot. C. G. Watson.
7 Spontaneous Rupture of Hematocele of Tunica Vaginalis. F. J. F. Barrington.
8 Spontaneous Hemorrhage into Testicle. Report of Cases with Review of Literature. F. J. F. Barrington.
9 Contemporary Russian Surgery. V. A. Oppell.
10 *Ununited Fractures Treated by Long-Axial Drilling of Fractured Bone-Ends. A. G. Wildey.
11 Application of Principle of Extension to Comminuted Fractures of Long Bone, with Special Reference to Gunshot Injuries. E. W. H. Groves.
12 *Treatment of Acute Emphysematous Gangrene. C. B. Lawson and H. B. Whitehouse.

1. **Treatment of Malignant Disease by Radium Irradiation.**—The effect of exposing malignant cells to radium irradiation, according to Morson, is as follows: 1. Rapid degeneration of the malignant cells in the immediate vicinity of the tube of radium. 2. Apparent vacuolation and enlargement of nuclei of those cells beyond the degeneration zone. 3. Loss of the reproductive function of the cancer cell. About the third day after treatment the connective-tissue cells commence to proliferate. This action of radium on the connective-tissue cells shows a similarity to the attempt of nature to arrest the growth of cancer through new formation of fibrous tissue. If an excessive quantity of radium or too prolonged an exposure be given, not only necrosis of the whole tumor results, but the normal tissues slough also. Owing to the sensitiveness to irradiation of the endothelium which lines blood vessels, thrombosis is liable to occur. The vascular supply of the malignant tumor may thus be interfered with.

The microscopic changes which have been described can only be detected when the malignant cells are exposed to the rays in the body. The author has made experiments with a view to finding out whether by irradiating tumors outside the body it is possible to detect similar changes. Portions of growth suspended in the patient's blood immediately on removal have been submitted to irradiation for twenty-four hours at body temperature. No differences in microscopic appearance were observed between these and the controls, which were kept under similar condition but non-irradiated. When a malignant tumor has apparently disappeared after radium treatment, a thickening of the tissues, due to proliferation of the connective-tissue cells, is found to have taken place. If the treatment has been successfully carried out, no active inflammatory changes are detectable. In the normal tissue there is a marked increase in sensitiveness to irradiation when radium is applied a second time. Pigmenta-

tion of the skin and telangiectases are common sequelae of radium irradiation. No evidence has yet been brought forward to show that diminution in size takes place in visceral, skin or bone metastases after removal of the primary growth by radium treatment. In a few cases, however, a decrease in the size of the gland metastases has been observed.

3. **Ossification in Sarcoma of Bone.**—Three cases of endosteal sarcoma in which ossific changes took place are cited by Knaggs and Gruner. The new bone formation was independent of the periosteum. The active element in the process appeared to be the sarcoma cell. It is around this cell that the calcareous particles were deposited, sometimes in well-marked granules, sometimes as a haze in which the particles were too small to be recognized, but eventually thickening into non-laminated trabeculae of irregular shape. The process did not seem to be preceded by a tendency to necrobiosis—the explanation of ordinary calcareous degeneration—for in cases in which ossification was proceeding rapidly there was usually a very marked increase in the connective-tissue development, and the nuclei showed well, and the vascularity was marked. Often also there were signs of a tendency to definite arrangement which the authors believe justifies the use of the term ossification rather than that of calcification, and which is opposed to the idea of death. On the other hand, the cells showed a tendency to shrink, or, in the case of the giant cells, to lose their numerous nuclei after inclusion or as the calcification process began. Just as in a chondrosarcoma, when ossification begins, the lime salts are deposited in the matrix in the immediate vicinity of a cell, so in these cases the calcareous particles are laid down in the intercellular substance. Not only was the bone formation independent of the periosteum; in all three cases it occurred chiefly within the limits of endosteal bone formation.

4. **Treatment of Urethral Stricture by Excision.**—In all cases of stricture that are not easily managed by dilatation, excision of the stricture is advised by Russell. In all cases of stricture that are easily managed by dilatation, no further operation is advised; nevertheless, even for patients in this category who may desire to be rid of even a moderate stricture, the operation, in his opinion, offers a safe and efficient remedy. This operation should entirely supersede both internal and external urethrotomy as now performed.

6. **Tibiocalcaneal Resection with Amputation of Remainder of Foot.**—A method of amputation at the ankle-joint which leaves the heel intact produced excellent results in the seven cases operated on by Watson, and, in his opinion, has provided more serviceable stumps than could have been obtained by Syme's or Pirogoff's amputations. The main principles of the operation are to leave the original walking-surface of the heel intact, and to preserve the malleoli; to amputate the foot in front of the os calcis, together with the astragalus; to remove the cartilaginous surfaces of the lower ends of the tibia and fibula and of the upper surface of the os calcis; and then to wedge the os calcis between the malleoli, and pin it there with an excision pin driven through the heel (to be removed in about a fortnight).

The following advantages are claimed for the method: 1. The patient walks on the original heel-pad, which has been accustomed to carry weight and to bear pressure. 2. A club-shaped stump is secured by not removing the malleoli, which gives a firm hold to the "uppers" of an ordinary boot. 3. The shortening of the limb is reduced to a minimum (about an inch on the average). 4. No expensive artificial apparatus is necessary. An ordinary boot can be worn (a great advantage for hospital patients) if the sole is stiffened with a sheet of metal and a block provided for the toes. 5. Owing to the original heel-pad being left intact, weight can be borne on the stump at an early date without risk of pain or undue pressure. The method may be employed in lieu of Chopart's amputation (when this operation is possible) without the risk of backward tilting of the os calcis from contraction of the tendo Achillis. Less skin is required for the dorsal flap than in Chopart's amputation, and the stump is no less serviceable for walking.

10. **Ununited Fractures Treated by Long-Axial Drilling of Fractured Bone-Ends.**—The operation emphasized by Wildey consists in thoroughly exposing and cleaning the ends of the fragments at the seat of the fracture, refreshing them by removing the thinnest possible transverse section of bone that will ensure a complete removal of all dense fibrous tissue, and drilling, in the long axis of the shaft, several channels in the indurated bone-ends; the effect of this maneuver is the production of an artificial porosity of the osseous tissue. The drill is made to penetrate to healthy bone; at the same time the medullary cavity, which may be found occluded, is made patent by longitudinal perforations. Apposition and immobility of the fragments are secured by plates or other mechanical means. This method, which has been employed in many cases of long-standing non-union, has not failed to produce an abundant callus. Gratifying results have been obtained in cases in which a previous and unsuccessful operation had so shortened the limb that any further removal of the indurated bone must have left functional disability.

12. **Treatment of Acute Emphysematous Gangrene.**—Attention is directed by Lawson and Whitehouse to a new method of treatment of emphysematous gangrene. Half an hour before operation the patient receives a hypodermic injection of 1/100 gr. of atropin sulphate and ¼ gr. of morphin tartrate. General anesthesia as a rule is employed; but if the patient is profoundly septic, and the wound involves the lower extremity, spinal anesthesia is preferred. A point is then selected three or four fingers' breadth above the line of advancing gangrene, as shown by the dusky copper-colored tint of the integument. An incision about ¼ inch in length is made through the skin and subcutaneous tissues as far as the fascial sheath of the muscles. A pair of sinus forceps is then introduced into the wound, and the whole of the subcutaneous tissue opened up as widely as possible. The nozzle of an ordinary Higginson's syringe is introduced into the incision, and neutral hydrogen peroxid (10 volts) at body temperature is pumped into the subcutaneous spaces under pressure. The dissemination of oxygen is aided by kneading and massage. It is essential that the belt of oxygen be complete above the line of advancing gangrene, and therefore it is usually necessary to repeat the procedure at various points. This done, the gangrenous area itself is treated in a similar manner by puncture and infiltration. Finally, the wound is thoroughly explored and cleansed. All foreign material, dead and contused tissue is removed, and the cavity irrigated with normal saline (in order to wash away débris and clot), and then freely with hydrogen peroxid. Drainage by rubber tube and gauze is established, and the whole limb dressed with dry gauze and wool. Although much drainage may be anticipated, the authors consider it a mistake to employ huge quantities of wool and gauze in these cases. The aim should be to allow free access of air, coupled with efficient protection to the wounded tissues.

Journal of Tropical Medicine and Hygiene, London

January 15, XVIII, No. 2, pp. 13-24

13 Wild Game and Human Trypanosomiasis; Nomenclature of Certain Pan-African Trypanosomes. H. L. Duke.

Lancet, London

January 30, I, No. 4770, pp. 217-264

14 *Telephone Attachment in Surgery. J. M. Davidson.
15 Splenectomy for Enlarged Spleens with Anemia. G. Barling.
16 *Study of Basis of Abderhalden's Serum Reaction. W. E. Bullock.
17 Electrotherapy at Base Hospital. W. J. Turrell.
18 Fear and Disease. E. T. Jensen.

14. **Telephone Attachment in Surgery.**—Davidson advocates the adoption of a telephone, preferably with double receivers, connected together by means of a steel or elastic band, so that each ear has its separate receiver. This not only increases the intensity of the sound, but also serves to cut off extraneous sounds which might interfere with the audibleness of the telephone. Should the surgeon wish to have one ear uncovered so as to be able to attend to the remarks of anyone near him, it is quite a simple matter to move aside one of the

receivers. This double arrangement, however, is not essential, and a single telephone gives quite good results if the surgeon's hearing is acute. The carbon plate is placed on the patient's moistened skin, and plaster or bandage may be used for holding it in position tightly against the skin. The other end of the telephone should have attached to it a bare wire, of silver preferably, which has been disinfected by boiling or otherwise as the surgeon may direct. One end of this wire being attached to the telephone terminal, which, of course, cannot be disinfected readily, the other end need be handled only by the surgeon or his assistant with the usual antiseptic precautions, and the wire can either be wound round any instrument it is desired to use, or a spring clip may be employed by means of which the wire can be conveniently brought into connection with the knife, probe, needle or forceps, as the case may be.

Under these conditions, if the instrument is introduced into the body it will on first contact with any metal give rise to an unmistakable click carried through the telephone, and then, if it be gently moved or slightly disturbed so as to make a rubbing contact with the foreign body, an equally unmistakable loud rattle will be elicited. By such means the metal can be dissected out (if the knife is used) or otherwise freed from the encircling tissues, because a constant control can be exercised over the foreign body by reason of the microphonic rattle it produces when the instrument comes into contact with it. In cases in which a foreign body has been carefully localized by means of Roentgen rays, a needle can be attached to the telephone in the manner stated, run down on to the foreign body, and, when the characteristic sound is heard, can be maintained in its position as a guide before any incision is made. The telephone attachment to forceps is particularly useful, because these can be used as a probe, and when the foreign body is between the jaws a characteristic sound is evoked.

16. **Abderhalden's Serum Reaction.**—The chief object of Bullock's work was to test the reliability of the reaction as applied to the diagnosis of cancer. It was found impossible to cause the production in rabbits of a ferment which digests coagulated egg albumin by the injection subcutaneously, intraperitoneally, or intravenously of raw egg albumin. A minute quantity of amino-acids is present in 10 c.c. of blood serum of rabbits and dogs, and it was found (in rabbits) that after a bleeding these substances are increased in amount. An autolytic ferment is found in the blood serum of rabbits, of dogs and in human serum. The serum of the pregnant rabbit is unable to break down rabbit placenta, and the serum of the pregnant bitch is unable to break down dog placenta. Human blood serum from the pregnant female and from healthy male, incubated with human placenta, produced by chemical or physical action amino-acids.

Rat blood serum ("normal" and "tumor") breaks down rat tumor. Guinea-pig serum ("normal" and "tumor") breaks down guinea-pig tumor and mouse tumor. The blood serum of the guinea pig was not rendered more active in this property by a previous inoculation of the animal with mouse tumor. Bullock asserts, therefore, that the method devised by Abderhalden is inadequate to distinguish normal from pregnant or cancerous serum. The fundamental experiments adduced by Abderhalden do not, on repetition, give the results stated by him, and a proteolytic ferment normally present in the serum of mammals acting on tissue substrates of varying lability, prepared in accordance with his directions, in all probability accounts for his results and their confirmation by others.

Archives des Maladies du Cœur, etc., Paris

September, VII, No. 9, pp. 561-592

19 *Pernicious Anemia in a Roentgenologist. C. Aubertin.
20 Infectious Origin of Congenital Malformations of the Heart and Large Vessels. G. Clarac.
21 Iron Content of the Viscera. (La sidérose viscérale.) C. Aubertin.

October, No. 10, pp. 593-624

22 *Femoral Vein Pulse in Heart Disease. (Pouls veineux fémoral d'origine auriculaire dans 3 cas de maladie du cœur droit.) C. Pezzi and U. Gasperini.

November, No. 11, pp. 625-656

23 *Paroxysmal Tachycardia. E. Donzelot.

December, No. 12, pp. 657-688

24 *Radiotherapy in Severe Anemia. H. Vaquez and C. Aubertin.

19. **Pernicious Anemia in Roentgenologist.**—Aubertin has previously pointed out that in the blood of persons having much to do with radiant energy the leukocytes are frequently much modified, the numbers extremely low, with hypopolynucleosis and eosinophilia. The reds never seemed to suffer in the cases examined, but an exception to this rule has been afforded by the tragic fate of Dr. Tiraboschi who has recently succumbed to progressive pernicious anemia. The blood-producing organs were found the seat of important changes, especially the spleen which was in pronounced atrophy. He had been in charge of the Roentgen department of the Bergamo hospital in Italy for fourteen years, and at one time had a Roentgen dermatitis which soon healed without ulcerating. His two sons are healthy. The atrophy of the spleen and the content in iron-containing pigment were beyond anything Aubertin has ever encountered. These findings resembled those in animals after repeated intensive Roentgen exposures, and suggest that the Roentgen rays are liable to induce a special pernicious anemia in certain cases.

22. **Pulsation in the Femoral Vein.**—In the three cases related there were disturbances in the right heart, and the pulsation in the femoral vein was of auricular origin. In two of the cases there was also a presystolic pulsation in the liver. This abnormal femoral venous pulse could be detected by careful palpation, and this revealed the presence of the heart disease and aided in localizing it when clinical and roentgenoscopic examination was negative.

23. **Paroxysmal Tachycardia.**—Donzelot classes paroxysmal tachycardia as the regular, total type; the partial type, sometimes called auricular flutter; and the irregular type, that is, with attacks of complete arhythmia. In the first type the tachycardia comes on suddenly, in the midst of apparent health, with a sensation of shock in the chest, and the delirious heart action ceases as abruptly as it began. In the intervals between the attacks the individual seems to be in the best of health. When these attacks are few and far between the heart does not seem to suffer, but if they grow longer and more frequent, the myocardium gets worn out and serious mischief results. The different types may blend into each other or be superposed, and it is not unusual to see the progression through the three types to a fatal conclusion. No mention is made of treatment. (See abstract 43 in these columns Feb. 6, 1915, p. 546.)

24. **Roentgen Treatment of Severe Anemia.**—In large doses, the Roentgen rays have a destructive action on the bone marrow, but in small doses they merely stimulate it to better functioning. This at least is what Vaquez and Aubertin conclude from the favorable results of Roentgen exposures in a case of severe anemia probably the result of long, mild carbon monoxid poisoning. The reds numbered 750,000, the whites 4,800, hemoglobin 15 per cent. and the man of 41 was too weak to be up and about. Marked improvement followed a course of very mild Roentgen exposures. In a girl of 14 with febrile anemia, seven Roentgen exposures in the course of a month produced a marked improvement, the patient keeping comparatively well for a year; then the anemia returned and proved fatal in spite of a renewed radiotherapy and other measures. Some other cases are cited, all demonstrating that benefit may be expected when the blood marrow is still capable of responding to the stimulation. When it has degenerated beyond this, nothing can be hoped from the treatment. The outlook can be determined by examining the blood repeatedly during the course of exposures. If the numbers of nucleated cells increase, improvement may be counted on, but if the number of nucleated cells does not vary, the prognosis is grave. The radiotherapy seems to act in the same way as arsenic. In cases of mild anemia other measures seems to deserve the preference, although Grego has reported excellent results in two cases of neurasthenia with chloro-anemia given 2.5 H units at three-day intervals for three weeks. Similar benefit was

realized in a case of anemia from excessive loss of blood. With these small doses the reds and hemoglobin percentage increased without any drop in the number of whites. Vaquez and Aubertin applied the rays with the same technic as for myeloid leukemia, especially to the knees, shoulders and elbows, and occasionally, the sternum. The rays are filtered through 2 or 4 mm. of aluminum. In one case the first dose was too large (18 H units scattered over the different epiphyses of the long bones), and the immediate result was a temporary aggravation of the anemia.

Archives de Médecine des Enfants, Paris

September, XVII, No. 9, pp. 641-720

25 *Diphtheria Bacilli Carriers. (Quelques documents relatifs à l'étude des porteurs de germes diphthériques.) J. Renault and P. P. Lévy.
26 *Urea Content of Cerebrospinal Fluid and the Ash in the Stools with "Atrophy of Infants." (Azotémie et cendres des matières fécales chez les athrepsiques.) Nobécourt and C. Bidot.
27 *Treatment of Inguinal Hernia in Children. A. Nota.
28 Exophthalmic Goiter in Girl of Seven. G. Railliet.
29 Nitrogenous Bodies in Blood of Children. (L'azotémie chez les enfants. J. Comby.

25. **Diphtheria Bacilli Carriers.**—Renault and Lévy made weekly smears from the throats during two months in a school connected with a hospital and in two hospital wards. A total of 784 smears were made, including some from the relatives of 44 of the children who had recently had diphtheria. They give charts showing the percentage of carriers. The constant arrival of new inmates for the school and wards made the findings very variable, but the number of carriers invariably showed a marked increase when a child entered who had recently passed through diphtheria or one developed it in the school or ward. The closer neighbors of the diphtheria case nearly always had diphtheria bacilli in their throats. The facts observed led to the adoption of the following rules, and long experience, they say, testifies to their being rational and safe: 1. In the family, when a case of diphtheria develops, and medical surveillance and hygiene can be counted on, no preventive injection of antitoxin is made, except to infants in arms. When it is doubtful if surveillance and hygiene can be enforced, all the members of the family are given a prophylactic injection. 2. In schools and asylums, medical supervision and strict hygiene are not always attainable, and consequently the children should be closely watched if a case of diphtheria develops. If a second case appears, then every one must be given the preventive injection. 3. In the hospital, as the supervision here is perfect, there is no need for preventive antitoxin unless an epidemic threatens. This is rendered probable when two cases of diphtheria develop close together. Very young children and those with measles should always be given a preventive injection even if only one case develops in their ward.

26. **Metabolic Findings in Atrophy of Infants.**—The metabolic findings in five extremely debilitated infants are tabulated, showing that such infants are uremic, and that the azotemia increases as the cachexia becomes more pronounced, and subsides as health returns. The azotemia was estimated by the urea content of the cerebrospinal fluid.

27. **Inguinal Hernia.**—Nota's method of treating inguinal hernia in children is by introducing a deep crescent cut out of a sheet of paraffin. It was described in these columns, Sept. 12, 1914, p. 980.

Archives Mens. d'Obst. et de Gynéc., Paris

August, III, No. 8, pp. 49-96. Last indexed Sept. 12, p. 975

30 *Cesarean Section after Rupture of Fetal Membranes. (Cesariennes tardives.) E. Zarate.
31 Antigonococcus Vaccine and Serotherapy in Gynecology and Obstetrics. E. Gaujoux.

30. **Tardy Cesarean Section.**—Zarate describes from his experience at Buenos Aires four cases in which the classic cesarean section was applied as an emergency measure four, twelve and sixty-two hours after the fetal membranes had ruptured. The outcome was excellent for both mother and child in each case. The uterus was drawn out through a long median abdominal incision, the lips of which were held together with forceps behind the uterus, the abdomen protected with compresses. A sheet was then drawn over the uterus and the assistant kept this smooth and fitted down to the curve of the uterus even when the organ retracted after incision and evacuation. The interior of the uterus was thus protected, as also the tissues of the uterus wall against contact with the amniotic fluid. The membranes and placenta were removed with dry sponges. Then the interior of the uterus and the lips of the incision were swabbed out with a mixture of equal parts alcohol and tincture of iodin if the cervix was dilated. If not, he tamponed the cavity with medicated gauze, pushing a strip down toward the vagina. Then the protecting sheet was discarded and the uterus sutured. A little morphin was given four hours later to keep the viscera tranquil.

Archiv für Kinderheilkunde, Stuttgart

LXIV, Nos. 1-2, pp. 1-160. Last indexed Nov. 28, 1914, p. 1987

32 *The Declining Birth-Rate in Mecklenburg-Schwerin. (Der Geburtsrückgang.) P. Herzberg.
33 Eight Years of the Children's Ward in Rostock Hospital. A. Kosmowski.
34 Lymphoblastic Sarcoma in Boy of Three. (Zur Casuistik der malignen Abdominaltumoren des frühen Kindesalters.) J. Duken.
35 Congenital Atresia of Esophagus with Fistula into Trachea. G. Schmidgall.

32. **The Declining Birth-Rate.**—Herzberg quotes Moltke's saying that the declining birth-rate in France is equivalent to the French losing a battle every day, but he adds that Germany nowadays is not far behind France in this respect. In 1876 the birth-rate in Germany was 42.6 while in 1911 it was only 29.5. The rate is even less than this in the Mecklenburg province, having declined from 46.14 in 1810 to 25.7 in 1912. Herzberg proposes an internal colonization as the remedy, providing ways and means so that young men from the cities or rural districts might be aided to set up a farm and a household for themselves instead of swelling the ranks of the periodically unemployed.

Deutsche Zeitschrift für Chirurgie, Leipzig

December, CXXXII, Nos. 3-4, pp. 209-380

36 Hemorrhoids Result of Pressure at Defecation. S. Szuman.
37 Experimental Study of Cholelithiasis. T. Aoyama.
38 Lymphatic Leukemia. (Lymphatische Leukämie, mit bes. Berücksichtigung ihrer grosszelligen Form.) H. Nakamura.
39 Cysts in the Kidneys of Child of Three. (Die solitären Cystennieren.) G. Zacarini.
40 Experimental Study of Traumatic Pressure Action at an Explosion. F. Rusca.

Münchener medizinische Wochenschrift, Munich

January 12, LXII, No. 2, pp. 41-72

41 *Calcium Chlorid in Treatment of Hay-Fever. (Weitere Mitteilungen über erfolgreiche Behandlungen des Heufiebers.) R. Emmerich and O. Loew.
42 The Subcutaneous Tuberculin Reaction in Diagnosis. (Wert und Technik der subkutanen Tuberkulindiagnose.) C. Kraemer. Commenced in No. 1.
43 Gas Phlegmons in War. E. Payr.
44 Suture of Nerves. (Zur Frage der Nervennaht.) W. Spielmeyer. Concluded in No. 3.
45 Pathologic Anatomic Findings at the Base Hospitals. (Beobachtungen aus Reservelazaretten.) J. G. Mönckeberg.
46 Danger of Tropical Diseases Appearing in Europe during the War. (Möglichkeit des Auftretens exotischer Krankheiten während des Krieges.) M. Mayer.
47 Dressing Fractures for Transportation. (Ueber Transportverbände bei Schussfrakturen.) Schlossmann.
48 *Biology of Body Lice and Means to Avoid Them. (Biologie und Bekämpfung der Kleiderlaus.) S. v. Prowazek.
49 Hygiene in the Camps of Prisoners. (Hygienische Erfahrungen bei Kriegsgefangenen.) G. Seiffert. Commenced in No. 1.

41. **Calcium Chlorid in Treatment of Hay-Fever.**—This communication states that the use of calcium chlorid in treatment of hay-fever is based on the physiologic action of the drug, and hence it is rational and effectual. Hay-fever patients cured by it in 1913 had no return of their malady in 1914 but seem to be permanently cured. Others had their hay-fever very much attenuated, almost to a complete cure, and in the following season it appeared only in the attenuated

form. The cell nucleus in glands, muscles, ganglion cells and leukocytes requires calcium for its proper functioning. The utilization of food is more complete when calcium is being taken; this is evidently due to an increased production of enzymes, and this production of enzymes is a function of the cell nucleus. Other consequences of the intake of calcium are increased phagocytosis, strengthening of the constitution, and enhanced resisting powers to various morbid influences. The calcium salts reduce, further, the overexcitability of the nerves which leads to sneezing, etc.

Emmerich and Loew have always impressed on hay-fever patients that vegetables and fruit are of much greater moment for the mineral supply than meat or starchy foods or bread. Vegetables and fruit also contain the salts of organic acids, especially potassium salts, which in the body become oxidized and aid in maintaining the alkalinity of the blood; this in turn aids in the retention of calcium. A number of new cases are related including the case of a man of 41 who for years had had severe hay-fever from the middle of May to July, sometimes sneezing forty times in succession. He began in March to take the chlorid and for the first time in fifteen years had a summer free from hay-fever. The formula calls for 100 gm. crystallized calcium chlorid in half a liter of distilled water. Three teaspoonfuls of this are taken during the day, always with the meals. This dosage is no more than one gets in a pint of milk, and it seems to be entirely harmless. Loew has taken this dose daily for six or seven years without harm. Jacobi and Wolff-Eisner experimented with calcium salts to learn their action on the kidneys, but their experiments with very large amounts and on diseased kidneys have no bearing on the therapeutic use of the above small doses of calcium chlorid. Jacobi emphasizes this in particular, saying that he has witnessed very brilliant results from the latter. Wolff-Eisner remarks that the calcium probably has an inhibiting action only on morbid kidneys, as he could find no influence of the kind in his two cases with sound kidneys.

48. **Vermin.**—Prowazek has been experimenting with various substances to keep lice away and states that the ethereal oils are effectual for this while they do not soil the clothes nor expose to danger of fire. Oil of anise and oil of fennel were the most effectual in his tests, and he recommends inunction of the mixture of 30 parts pure oil of anise and 70 parts 96 per cent. alcohol. He cites Leuwenhoeck that the body louse has about 5,000 offspring in the course of two months. The nits hatch out in three or four days and are sexually mature in about eighteen days. Nits on the clothes can be destroyed by sulphur or steam, or by placing in an air-tight vessel in which benzin has been sprinkled.

Wiener klinische Wochenschrift, Vienna

January 14, XXVIII, No. 2, pp. 29-56

50 Colon Bacillus Vaccine in Treatment of Various Acute Infectious Diseases. (Bakteriotherapie akuter Infektionskrankheiten: Heterobakteriotherapie.) R. Kraus.

51 Principles for Treatment of Wounds of the Thigh. (Behandlung der Schussfrakturen des Oberschenkels.) E. Suchanek.

52 Glycerin-Glue Mixture to Protect the Feet against Freezing. (Zur Prophylaxe und Therapie der Erfrierungen.) E. Pribram.

53 *Operative Treatment of Exophthalmic Goiter. (Kasuistisches zur Frage therapeutischer Misserfolge bei Morbus Basedowii.) H. v. Haberer. Commenced in No. 1.

54 Wounds of the Jaws. (Schussverletzungen der Kiefer und ihre Behandlung durch den Zahnarzt.) F. Steinschneider.

53. **Failures in Operative Treatment of Exophthalmic Goiter.**—The first installment of this article was reviewed last week. Here von Haberer gives further details of the case there described. He emphasizes that it was a typical example of status thymicus but with no suggestion of status lymphaticus; this confirms the assumption of the independence of the conditions. The case is chiefly instructive on account of the evidence it presents of the important part played by the thymus in the Basedow syndrome. This was the only fatal case among the twenty-three in which he has resected the thymus for exophthalmic goiter, and it is the only one in which he left a large proportion of the gland unmolested as it proved to be so much larger than he had supposed. The action of the thymus is shown by this case and others resembling it to be a toxic action on the heart. The extremely high temperature seems to be a special feature of the postoperative thymus trouble. In future, if delirium cordis sets in after an operation for exophthalmic goiter, he intends to expose the thymus and resect still more of it. In conclusion he reports a case of unfavorable results from operative treatment of exophthalmic goiter after a course of ten Roentgen exposures had been given beforehand. The symptoms had not been benefited in the least while the operation later was rendered much more tedious and difficult by the modification of the tissues under the Roentgen rays. The thymus had evidently not been reached by the rays. To waste time on Roentgen treatment is therefore futile and dangerous.

Zeitschrift für klinische Medizin, Berlin

LXXXI, Nos. 1-2, pp. 1-198. Last indexed Dec. 12, 1914, p. 2169

55 Comparative Tests for Sugar in the Blood. (Vergleichende Blutzuckerbestimmungen durch Polarisation und Reduktionsmethoden.) C. Maase and H. Tachau.

56 Apparent Inhibition of Clotting in Blood from Tuberculous Lungs. (Ueber Ungerinnbarkeit des Blutes bei der Hämoptoe der Phthisiker.) E. Magnus-Alsleben.

57 *Mechanism of Secretion of Urine in the Kidney. (Mechanismus der Harnabsonderung in der Niere.) E. Leschke.

58 The Capillary Pulse. E. Jürgensen.

59 *Drug Tests of Disturbance in Vegetative Nervous System. (Was leistet die pharmakologische Prüfung in der Diagnostik der Störungen im vegetativen Nervensystem?) G. Lehmann.

60 Pseudodysentery in Denmark. (Klinik und Epidemiologie der giftarmen Dysenteriebazilleninfektion in Dänemark.) C. Sonne.

61 Color Test for Uric Acid in the Urine. (Kolorimetrische Harnsäurebestimmungen im Harn.) H. F. Höst.

62 *The Status Lymphaticus and its Relation to Pluriglandular Disease. H. Pribram.

63 Physical-Chemical Processes in the Blood and Their Diagnostic Import. (Einige Versuchsresultate zum Verständnisse physikalischchemischer Vorgänge im Blute unter normalen und pathologischen Verhältnissen.) G. Holler.

64 Serum from Rabbits Treated with Diphtheria Toxin and Its Action on the Blood Pressure of Normal Rabbits. H. Zondek.

65 Influence of the Nervous System on the Pigment Content of the Skin. F. Nehl.

57. **Mechanism of Secretion of Urine.**—Leschke states that sodium ferrocyanid injected into animals, even in enormous amounts, is eliminated exclusively through the convoluted tubules in the kidneys, in which its presence can be unfailingly revealed by treating the kidney tissues with a silver nitrate solution and then with a photographic developer, as he describes in detail. The elimination of urea is shown up in a similar way by transforming it into a brown mercury salt, and this too is found only in the convoluted tubules. The phosphates and sodium chlorid also obey the same law. Even when extremely large doses are taken, no more of either is found in the glomeruli than corresponds to the low physiologic concentration in the blood serum. This histochemical technic thus demonstrates unerringly that the normal elements of the urine, the chlorids, phosphates, uric acid, purins, etc., are eliminated exclusively through the convoluted tubules. The glomeruli secrete only water in the physiologic solution, and never more than the physiologic proportions of the elements of the urine.

59. **Pharmacologic Tests of Disturbances in the Vegetative Nervous System.**—Lehmann made 700 tests on about 200 persons, injecting pilocarpin or epinephrin to study their action on the vagus and sympathetic systems. His findings did not confirm the statements of Eppinger and Hess in regard to antagonism between these nervous systems. He found that over 95 per cent. of those exceptionally susceptible to the action of epinephrin were likewise exceptionally susceptible to the action of pilocarpin, and vice versa. The young seem to be more sensitive than older persons. On the whole, the results of his research were disappointing. In many persons who manifested an intense reaction to the drugs, not a trace of any disturbance in the vegetative nervous system could be detected. On the other hand, certain patients presenting distinct vagus stigmata and reacting intensely to pilocarpin and treated with atropin on these indications, yet failed to show the slightest benefit from it. This corroborates the assumption that the disturbance is not in the vagus alone

but that the whole vegetative nervous system is deranged. Benefit was derived from the atropin in only a small proportion of the cases, but it was so promptly evident that there can be no question that it must be credited to the atropin.

The reactions to the three tests, with pilocarpin, with atropin, and with epinephrin are tabulated in 100 cases. The findings confirm anew that the reaction to the pharmacologic tests by no means parallels the clinical symptoms. They show further that the conception of "vagotony" is in need of revision, although it has thrown instructive light on the group of internal secretion disturbances and neuroses of organs. Extreme caution is necessary in estimating the significance of the reactions to the pharmacologic tests. In conclusion, Lehmann warns of the severe by-effects he occasionally encountered in persons given even a single dose of epinephrin. In 40 per cent. the temperature rose slightly, and in some persons there was pulsation in the carotids or epigastrium, extreme pallor, headache, vomiting and distress. The test injection was, to stimulate the vagus, 0.01 gm. pilocarpin; to paralyze the vagus, 0.001 gm. atropin; to stimulate the sympathetic, 0.001 or 0.00075 gm. epinephrin. The latter test was supplemented by 100 gm. grape sugar given three hours before the epinephrin. An interval of two days was allowed between the tests.

62. **Relations between Status Lymphaticus and Derangement in Internal Secretion.**—Pribram studied this question on 2,500 patients who have passed through his hands at Prague in the last few months. The only truly characteristic findings are follicles at the base of the tongue and the behavior of the epiglottis. Lymphocytosis is common and, especially with hypoplasia in the genital organs, eosinophilia and basophilia were frequent. The follicles at the base of the tongue were much enlarged in 80 per cent. of the 150 persons who presented signs of status lymphaticus. The epiglottis, on the other hand, was infantile or omega-shaped. In 30 per cent. the glands in the neck were enlarged, and in 33 per cent. there was a striking tendency to genu valga and brachia valga. Alimentary glycosuria was evident in 6 per cent. and lordotic albuminuria in 33 per cent. These various findings were often isolated, so that a typical combination of a number was extremely rare.

Mitteilungen a. d. med. Fak. der Univ., Fukuoka, Japan

I, No. 1, pp. 1-252

66 *Traumatic Circumscribed Ossifying Myositis. S. Goto.
67 Snails as the Intermediate Hosts of Schistosoma. (Der Zwischenwirt des Schistosomum japonicum Katsurada.) K. Miyairi and M. Suzuki.
68 Organization of the Thrombus. T. Todyo.

66. **Ossifying Myositis.**—Goto reports five cases of traumatic circumscribed ossifying myositis and a number of experiments to reproduce it on rabbits, discussing the nature of the trouble and the best treatment. There seem to be three types: that in which the ossification proceeds from the periosteum, that in which it proceeds from the muscle tissue, and, thirdly, a combination of both. Treatment must vary with the type; the true periosteal ossification is merely a traumatic exostosis and as such is long in developing and no muscle fibers are found in it. The term "ossifying myositis" should be restricted to cases of muscular origin, although neither this nor the term "intramuscular osteoma" are strictly applicable, as there is no actual inflammation or tumor. The literature on the subject is discussed and also the points of difference between it and progressive multiple ossifying myositis. With the exostosis type, the functioning of the muscles is comparatively not much impaired. The shadow cast by the exostosis has clearer outlines than the shadow of a sarcoma, and the bone is harder to the touch.

In treatment of myositis, repose, application of heated air, hot baths and similar measures to promote the local circulation are beneficial, but too early massage is liable to injure further the tissues already demoralized by the trauma. Even cautious massage should not be attempted, Goto says, until the local hardness of the tissues is subsiding. The hardening generally starts in less than a week after the trauma. In prophylaxis, it might be wise to evacuate an intramuscular hematoma. Operative measures are not called for otherwise unless for persisting disturbances or when repeated Roentgen examination shows no signs of retrogression.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 2, LIX, I, No. 1, pp. 1-152

69 *Andreas Vesalius, 1514-1914. G. Van Rijnberk and E. C. Van Leersum.
70 The Church and Science in Vesalius' Day. L. Knappert.
71 Revolution in Anatomy Realized by Vesalius. (Vesalius als hervormer der ontleedkunde.) J. Boeke.
72 *Illustrations in Works on Anatomy before and during Vesalius' Day. G. Van Rijnberk.
73 *Portraits of Vesalius. J. G. de Lint.
74 *Relations Between the Anatomy of Vesalius and that of da Vinci. Verhouding van de ontleedkunde van Vesalius tot die van Leonardo da Vinci.) A. J. P. van den Broek.
75 *The Various Editions of Vesalius' Works and Commentaries Thereon. F. M. G. de Feyfer.
76 *Vesalius and Experimental Physiology. (Vesalius als proefondervindelijk physioloog.) G. Van Rijnberk.

69. **Vesalius.**—(The celebration of the fourth centenary of the "Luther of anatomy" has been world-wide, our exchanges from every land bringing tributes and mentioning historical exhibitions here and there in his honor. The one exception is the land that gave him birth, Belgium. THE JOURNAL'S editorial tribute was published January 2, p. 57, and January 16, p. 248. Of the only two perfect vellum copies of Vesalius' "Epitome" said to be extant, one was preserved in the University of Louvain. The physicians with the German forces at Brussels held a meeting in Vesalius' honor on his anniversary.)

72. **Illustrations in Works on Anatomy Before and During Vesalius' Day.**—Van Rijnberk reproduces a number of quaint illustrations from the works of De Ketham, 1491; Da Carpi, 1522; Valverde, 1556, and Stephanus, 1545, comparing their works with those of Vesalius.

73. **Portraits of Vesalius.**—The portrait of Vesalius from his own "Fabrica" is given, as also the large picture showing him at work on a cadaver in a crowd of enthusiastic spectators. There is also a reproduction of the oil portrait in the Amsterdam medical-pharmaceutic museum and of the one in the Royal College of London.

74. **Vesalius and da Vinci.**—Jackschath was one of the latest to claim that not Vesalius but da Vinci must be regarded as the Father of anatomy. In an address before the German *Naturforscher* Congress a few years ago he accused Vesalius of plagiarizing from da Vinci. Van den Broek's testimony apparently refutes this, and while hailing da Vinci as the greatest figure in the renaissance of art, he shows that Vesalius began the new birth of anatomy. (Vesalius amassed means while professor of surgery and anatomy at Padua so that he was able to publish the results of his research in the handsome style they deserved, and thus spread his results before the world, while da Vinci's drawings showing his grasp of anatomy were locked up in a private portfolio for centuries. Vesalius published his great work before he had reached the age of 30.)

75. **Editions of Vesalius' Works.**—Forty-seven pages are devoted to this list of the various editions that have been published of Vesalius' work and of the principal commentaries thereon.

76. **Vesalius' Work in Experimental Physiology.**—Van Rijnberk remarks that Vesalius' fame as the father of modern anatomy has overshadowed his research on physiology, and yet he did considerable work in the line of experimental physiology. The concluding chapter in his great work on anatomy is devoted to the "anatomy of the living," in other words, vivisection. This entire chapter is translated from the Latin here, with its numerous illustrations. The functioning of the muscles, tendons and various organs are discussed in turn. Figure 1 shows his conception of the functioning of the muscles and tendons in maintaining the balance. His total equipment for post-mortem work, vivisection and experimental physiology is shown in Figure 2. The rings at the side of the board and staple and chain at the head are to fasten the animal on the movable board. Van Rijnberk admits that much in this chapter is evidently taken from

Galen, who also did good work in experimental physiology. Vesalius even reproduces, uncorrected, certain manifest blunders in Galen's work. Aside from this, the chapter shows Vesalius as a skilful experimenter, a sharp observer and an excellent leader of a demonstration of experimental physiology. His tests of the functioning of the recurrent nerves are most instructive as also his method for artificial respiration when the chest has been opened—a century and a half before Robert Hook to whom artificial respiration is generally credited. Vesalius further shows insight into the mutual relations between the respiration and the action of the heart. Among the other points he noticed is the lower position of the stomach after a meal. This chapter of Vesalius' work might well serve as an outline for a modern examination in physiology.

Fig. 1.—Demonstration of action of muscles and tendons.

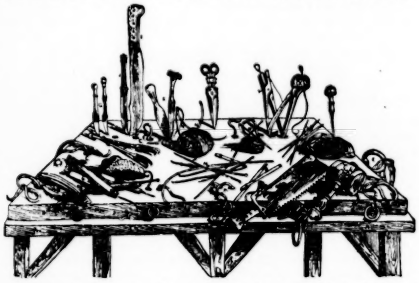

Fig. 2.—Vesalius' complete equipment for study of anatomy and experimental physiology.

Hospitalstidende, Copenhagen

January 20, LVIII, No. 3, pp. 57-80

77 *Frequency of Occurrence of Single Kidney. (Om Aplasia renis og venae cardinales resistentes.) K. Secher.

78 Progressive Symmetrical Dystrophy of Fat Tissue. (Et nyt Tilfælde af lipodystrofia progressiva.) V. Christiansen.

77. **Single Kidney.**—Secher describes the necropsy findings in a child without any left kidney or ureter, but the suprarenal gland on that side was unusually large. The genital organs were also asymmetrical. Since Ballowitz published in 1895 his compilation of 213 cases of single kidney, other cases have been reported, bringing the total to about 300. Secher remarks, however, that these figures are misleading as in many of the cases the distinction between total aplasia and atrophy of the kidney has not been made clear. The kidney was single in 7 of the 8,150 cadavers he has examined, that is, once in every 1,164 cases. According to the records, this occurs twice as often in males as in females, and it is the left kidney that is usually the missing one. The abdominal vessels and genital organs generally display more or less deformity in such cases. In the case reported in detail the heart was exceptionally large, which possibly may have some connection with the very large size of the left suprarenal.

Nordisches medizinisches Archiv, Stockholm

XLVIII, Internal Medicine, 1-2. Last indexed Feb. 13, p. 626

79 Methods for Experimental Testing of Digitalis Preparations. C. G. Santesson.

80 Diverticulum on Small Intestine. (Ein Divertikel der Pars descendens duodeni mittels Röntgenuntersuchung diagnostiziert und operativ entfernt.) G. Forssell and E. Key.

81 Comparative Study of the Wassermann and Hermann-Perutz' Reactions in Syphilis. (Recherches sur la modification apportée par Herman et Perutz à la réaction de précipitation au glycocholate de soude, spécialement au point de vue du diagnostic de la syphilis.) H. Bang and C. With.

82 Slight Influence from Thyroid Preparations on Growth of Puppies and Guinea-Pigs. (Einwirkung von Schilddrüsenpräparaten und Antithyreoidin auf das Wachstum bei jungen Hunden und bei Meerschweinchen.) I. Holmgren.

83 *Form of Idiocy with Deformity of Hands and Feet; Four Cases. (Akrocephalosyndaktyli.) B. Gadelius.

84 Action of Extracardiac Nerves on the Automatically Beating Ventricle. E. Zander.

85 Cardiogram of Right Auricle. (Et kardiogram från högra förmaket hos människa.) R. Friberger.

86 Mongoloid Idiocy in Sweden. E. O. Hultgren.

87 Pneumothorax in the Apparently Healthy. (Aetiologin vid pneumothorax hos kliniskt friska.) E. Lindhagen.

88 *Splenectomy; Four Successful Cases. G. Rystedt.

89 Experiences with Antigonococcus Vaccine. J. Reenstierna.

90 The Bacilli in the Blood, Lymph Glands and Joint Effusion in Rheumatic Affections. (Pleomorfa baciller i blod, lymfkörtlar och ledexsudat.) G. Forssner.

83. **Idiocy with Characteristic Deformity.**—Gadelius gives an illustrated description of his four cases of absolute idiocy with web fingers and toes and other deformities, cleft palate, exophthalmos, etc. He compares them with the one or two dozen similar cases on record. Apert encountered one and compiled eight further cases, and applied the term "acrocephalosyndactylia," which describes the more striking features.

88. **Splenomegaly.**—Rystedt removed the much enlarged spleen in a case of hemolytic jaundice, in two of Banti's disease, and in one case on account of cystic degeneration of the spleen. The results were excellent in each case. The patients were men of 25 and 27, a boy of 15 and a girl of 18.

Ugeskrift for Læger, Copenhagen

January 14, LXXVII, No. 2, pp. 51-78

91 *Thyroiditis. K. Nørregaard.

92 Aseptic Entero-Anastomosis. (Forslag angaaende en aseptisk Metode til Fremstilling af Anastomoser i Fordøjelseskanalen.) H. S. Bülmann.

91. **Disease in the Thyroid Gland.**—Nørregaard states that a tendency to goiter is frequently overlooked as it is much more common than generally supposed, especially in women. In a tuberculosis sanatorium Stein found among 1,283 tuberculous women 29 with exophthalmic goiter and 177 with simple goiter in the course of four years. Nørregaard reviews his own experience with 35 cases. One was in a boy; the rest were all women. A hereditary tendency to disease of the thyroid was marked in a number of his cases, the abnormal thyroid manifesting itself in different ways in various members of the family. These families are inclined to be nervous and restless and there were 14 insane or feeble-minded in the family histories of his 35 cases. He says he does not know of any special study of the thyroid by an alienist, but he is convinced that systematic research of this kind among the insane and feeble-minded would bring to light a number of interesting facts.

His own experience has demonstrated a close connection between thyroiditis and tuberculosis and also between thyroiditis and cancer, especially cancer of the breast. Adenoid vegetations and tonsillitis are also unusually prevalent among persons with simple or exophthalmic goiter. Detailed analysis of his 35 cases suggests that the thyroiditis develops from some focus of infection elsewhere, most often in the tonsils. Comparative anatomy shows a direct communication between them in some animals, and Weglowski found traces of a communication in 30 per cent. of 153 cadavers examined, including fetuses and the elderly. Nørregaard cites J. H. Johnson's report of several cases of exophthalmic goiter in which a cure was realized by direct treatment of the lingual tonsils. He always makes a point of direct treatment of the throat in all cases of thyroid disease, supplementary to the thyroid treatment. The results have been good in many instances but of course it is impossible to tell how much of the benefit was due to the treatment of the tonsils or adenoids. The chief danger that threatens persons with disease of the thyroid is derangement of the heart or mind, and cancer, but one of his patients is now over 80.